

APRIL, 1954

BUTANE-PROPANE

News

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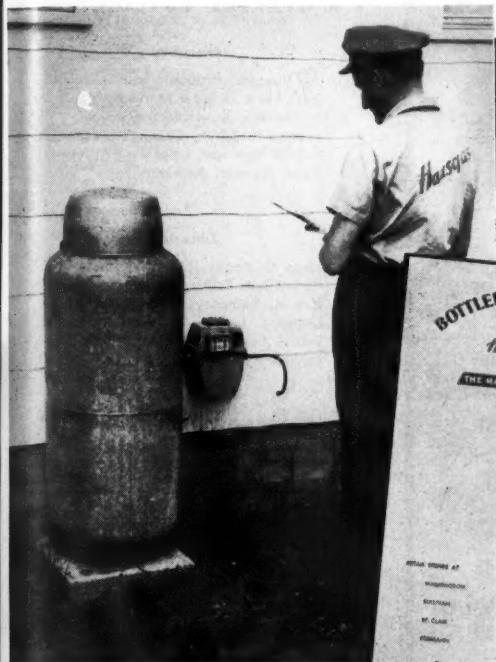
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tige to your business, cut
costs, build sales.

**AFTER 15 YEARS OF METERING
EXPERIENCE READ WHAT THEY SAY!**

Hausgas Incorporated

Washington, Mo.
February 18, 1953

Rockwell Manufacturing Company
Pittsburgh
Pennsylvania

Gentlemen:

In 1939 when we started our business, we felt metered gas would offer to customers in our locality a convenient method of paying their gas bills. This has certainly proved to be true since we now have fifteen years of experience.

A big advantage to us from an operating standpoint is that it allows us to determine our delivery schedule. We feel by this method of scheduling we have a better organized delivery system. While it is necessary that we carry the fuel inventory and also the cost of reading the meters and billing, we feel the increased business we have received through this convenient payment plan and better controlled delivery schedule, costs are offset. We certainly feel that metering has a definite advantage to people beyond the mains.

We believe if you check your records, you will find our Company was your first customer in any quantity of LP Gas meters and we appreciate the cooperation we have received from your company in correcting some of the early problems which were encountered in perfecting a meter for LP Gas service. We feel the Rockwell you have today is a perfect answer for metering in this field as its light weight makes mounting no problem and the replaceable features that we have been able to do their own repairing. We also feel pilots in the LP gas business which previously have definitely been a problem. Our experience proves to us that as of this writing, yours is the only one which adequately measures all types of flows.

Yours very truly,

Hausgas Incorporated

W. A. Schuette
W. A. Schuette
Manager

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THE MODERN FUEL

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APRIL 1954

BUTANE-PROPANE

News

NEP

VOLUME 16 • NUMBER 4

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BUTANE-PROPANE News is published monthly. Copyright 1954 by Jenkins Publications, Inc., at 198 So. Alvarado St., Los Angeles 57, California. Subscription price: United States, U. S. Possessions, and Canada (in advance): 50c per copy; one year, \$2; two years, \$3. All other countries: one year, \$4; two years, \$7. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 8, 1879. Member of Audit Bureau of Circulation, Controlled Circulation Audit, Liquefied Petroleum Gas Assn., National Fire Protection Assn.

Publishers: GAS, The Magazine of the Gas Utility Industry; HANDBOOK BUTANE-PROPANE GASES; THE BOTTLED GAS MANUAL; BUTANE-PROPANE POWER MANUAL; Annual BUTANE-PROPANE News CATALOG; LPG BULK PLANT MAILING LIST SERVICE; WESTERN METALS.

Headquarters
for L.P. gas
Information



Vaporizer for Brass Foundry

Ohio

We have a customer who is now using natural gas for a brass foundry and die casting machines.

The total input of his operations would be in the neighborhood of 2,000,000 Btu per hour. The brass foundry and die casting operations are located approximately 1000 ft. from our 30,000-gal. storage tank.

We are using two "Gasair" machines to inject propane-air into our natural gas lines at the location of our 30,000-gal. storage during the winter months.

We do not want to take vapor from our storage tank for this job, because we must maintain between 50 and 55 lbs. pressure to the Gasair machines for their operations, and at present we must use a pump in severe cold weather to maintain the necessary pressure to the Gasair machines.

We would like to know if any company makes a small size vaporizer that could be used in this case with a 1000-gal. or 2500-gal. storage tank. The tank could be filled daily if necessary by running a liquid line from our liquid pump to the tank.

Is it possible to secure an electric

heater for a tank to maintain pressure for this type of job?

L.H.G.

The 2,000,000 Btu per hour load of the brass foundry and die cast operation will require about 21 or 22 gals. of propane per hour.

You can draw liquid from your 30,000-gal. storage tank, vaporize it and deliver it to the foundry through a properly sized line as a gas. Also, as you suggest, a 1000-gal. tank could be located near the foundry. A small vaporizer of 25- or 30-gal. capacity could be used in conjunction with this tank.

Some manufacturers of small vaporizers are: American Liquid Gas Corp., 1109 S. Santa Fe Ave., Los Angeles 21, Calif.; The John E. Mitchell Co., 3800 Commerce St., Dallas, Texas; Consolidated Gas & Equipment Co., Box 6560, Stockyards Station, Denver 16, Colo.—Ed.

Pentane

New York

Please send me any information you may have on pentane, such as operating pressure, heating value, specific gravity.

J.S.

Normal pentane is a liquid at normal atmospheric temperature and pressure. Its

boiling point is 97° F. and at 100° F. has only .8-lb. vapor pressure. The heating value per gallon (60° F.) is 110,000 Btu; per pound is 21,120 and per cubic foot of vapor is 4015 Btu. The specific gravity of the vapor is 2.491 (air = 1) and of the liquid is .631 compared to water.

Additional technical information for normal pentane, isopentane and other similar hydrocarbons can be found on pages 22 and 23 of the "Handbook Butane-Propane Gases."—Ed.

Bulk Truck Fills Cylinders

Pennsylvania

Our method of delivering gas has been to deliver a full 100-lb. cylinder and return an empty or partly empty (allowing credit for remaining gas) cylinder for refilling at our gas supplier.

Since it will soon be time to trade in our pickup truck, we are faced with a problem. Here it is: Acceptance of propane gas in our territory for heating, water heating, commercial cooking, brooders, incinerators, etc., although not great, is growing every day. This will mean that there will be more and larger tanks to be installed all the time.

Therefore, we want to investigate the practicability of purchasing a bulk tank delivery truck and would like to know if we could also fill our 100-lb. cylinders at the customer's home without changing the valves on the cylinders.

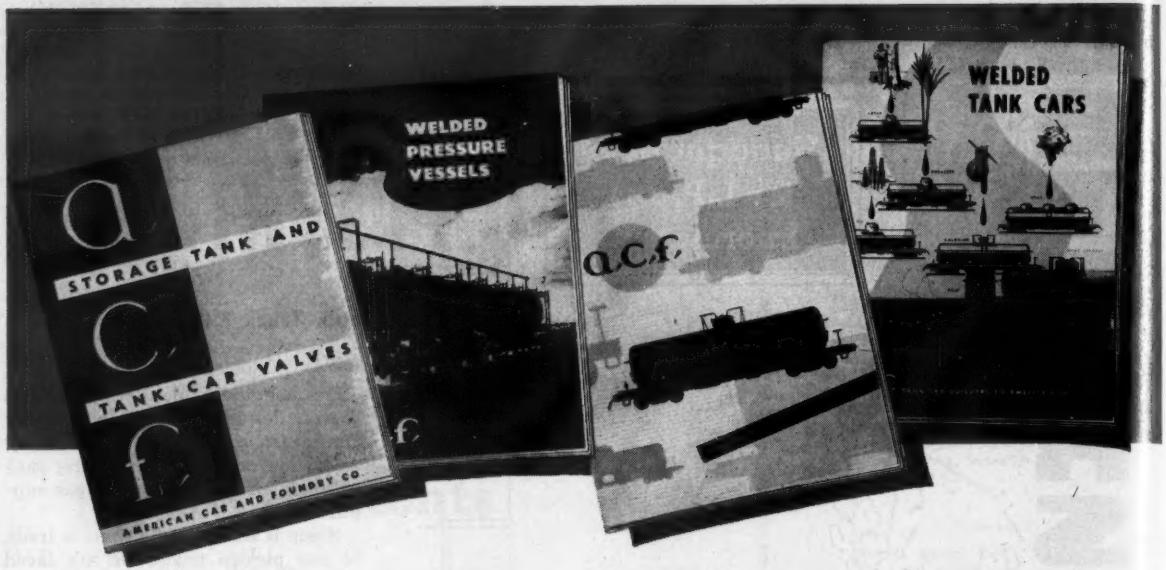
We were wondering if there was an approved system of determining the amount of gas remaining in the tank, perhaps some sort of portable scale. The desired system being, of course, to weigh the cylinder and fill it right at the customer's home.

Please let us know if this is possible and also if it is legal in Pennsylvania. If so, would you let us know where scales could be obtained and addresses of firms nearest us selling bulk delivery trucks.

This would be the first delivery truck of this kind in this area and we have been assured by other local gas dealers that they would install numerous bulk tanks at their customers' homes if there were a delivery truck capable of servicing them.

W.H.S.

Many dealers use bulk delivery trucks where they have customers, some of which are served by cylinder and some with bulk tanks. They fill both types from the delivery truck. However, cylinders, when filled in this manner, are usually fitted with a maximum fill gauge—the same as the permanent type tanks. Any cylinder filled on the customer's premises should be filled at a safe distance from buildings. Other dealers use a bulk delivery truck



Four authoritative booklets about:

- **Storage Tank and Tank Car Valves** . . . tells why Q.C.F. Valves last longer, flow faster, maintain trouble-free service. Complete specifications of all types available for various ladings and uses.
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Here, in one convenient place is a wealth of important factual information. Just the facts you'll want most before considering the purchase of any of these important products. Send for any or all.

There's an Q.C.F. Representative near you to give you further details that are of particular interest. Write: American Car and Foundry Company, New York • Chicago • St. Louis • Cleveland • Philadelphia • Washington • San Francisco

- **Tank Car Classifications for Lading** . . . This is the only reference of its kind! Tells at a glance which tank car to use for any given lading. Also blueprints and latest ICC regulations as they relate to tank usage.

- **Welded Tank Cars** . . . Contains pictures and specifications of standard types for gasoline, liquid caustic soda, sulphuric acid and many other products. Illustrates advanced production techniques . . . blueprints of tank car and valves . . . latest materials for resistance to heat, moisture, etc.

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so designed that cylinders may also be carried on it. Then, the cylinders are exchanged and the empties are returned to the bulk depot for refilling.

We do not have information available regarding the regulations on this matter in the state of Pennsylvania. We suggest you contact the proper authorities in Pennsylvania about this matter, or the state LPGA office representing Pennsylvania. William H. Plank is the East Central district secretary, located at 2501 North Front St., Harrisburg.—Ed.

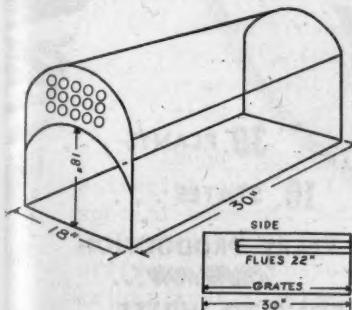
LPG Burner for Boiler

Alberta, Canada

Enclosed please find a drawing of a coal-burning hot water boiler. We would like to know if it is feasible to use a propane burner in the system. Our propane retails at 18 cents per gallon, and the temperature here frequently drops to 40 below for periods of one week. We would appreciate very much any information you can give us on a burner which would work economically in this system.

The customer states that his system will vapor-lock if there is too much heat applied suddenly to the flues. From this it would seem that we would need a burner operating with a throttling type control similar to an oven burner. Any suggestions you can give us will be gratefully received.

A.D.S.



We believe that a propane gas burner can be applied to the boiler you describe and provide efficient and satisfactory service.

It is suggested, however, that you consult the company that manufactured the boiler to which you refer for its recommendation of a gas burner and the proper baffling for gas firing. The baffles, brick lining and draft control all vary for coal, oil, or gas if maximum efficiency is to be obtained. The designers know how the fire box should be bricked and baffled to obtain best results on their equipment.

We believe they can offer you a good gas burner system on which they have made tests and which gives the best results in converting to gas.

Control valves which will open and close

slowly, or which position at two or three points, can be obtained to regulate the gas flow to the burner. Also, gas valves actuated by the boiler pressure to throttle the gas flow are available.—Ed.

Hot Water for Chickens

Pennsylvania

We are subscribers and readers of "Butane-Propane News" and decided to write you concerning a problem we have. We have a customer to hook up within the next two weeks who is in the chicken butchering business. They have been operating where they could use natural gas. In cleaning their chickens they use one-half of a 50-gal. drum and heat the water in this drum with a three burner hot plate. They advise us that this water has to be about 140°.

Now they have expanded their business and moved to a location where they are compelled to use bottled gas. They figure on discarding the above mentioned idea. They want to use a bathtub five feet long. They come to us to figure out some kind of a burner to heat the water in this bathtub and keep it at about 140° all day long. The water must be ready in the morning when their crew goes to work. This means that by some means the burner would have to play on the water through the night.

Can you think of something on the same principal as a stock tank heater, or do you know where we could get a burner that would go underneath the tub and possibly close in with tin around this burner so as to retain the heat? We thought that maybe they could heat this water in a regular automatic hot water tank and put it into the bathtub in the morning, then have some kind of a heater to keep it hot all day in the tub, remove the water at night and start all over again in the morning from this hot water tank.

If you will consider all the information we have given you, and advise us what your recommendations would be to this problem, it would be greatly appreciated by us.

J.A.O.

We suggest you write or contact one or more of the companies advertising in "Butane-Propane News" which have line burners which can be purchased in sections and built into continuous units for heating tanks such as you describe.

You might also consider the use of a side-arm type heater. These can be purchased complete with pilot, 100% safety shut-off and automatic temperature control. It should be installed in such a man-

ner that the hot water or tank connection enters the tub below the water level. The heater must have adequate capacity for your job.

It is also suggested that the tub be enclosed with a metal case and insulation to conserve heat and fuel. Also, a wooden cover to be placed over the tub when it is not being used or when it is being brought up to temperature will conserve fuel when the tub is standing by.—Ed.

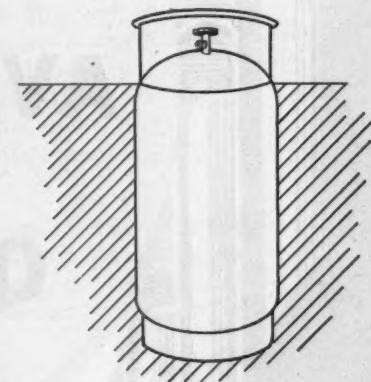
Aboveground Tank

Delaware

We wish to know if it is possible to use a standard 300-lb or 420-lb aboveground tank, like the type manufactured by Pressed Steel as an underground tank?

We would coat it with a black asphalt base preparation and put the tank into the depth where just the collar would be aboveground. Is there anything in Pamphlet 58 that forbids this? I am making a sketch of exactly how we plan to use them.

M.L.



Reference is made to Par. 2.6 (d) (c), p. 34, of NBFU Pamphlet 58 in answer to your question. Strictly speaking, your plan for installing the container would not conform with par. 2.6 (d) since the shell of the container would not be a minimum of two feet below the surface of the ground. One reason for the minimum two feet of coverage is the protection offered against damage. The protection guard and valve should be well protected against possible damage.

Since you did not explain why you are considering installing the ICC cylinders in the manner you describe, we cannot discuss the merits of such an installation.

If you expect to gain vaporizing capacity in the winter months, we doubt if there would be much advantage since a majority of the tank would be in the frozen portion of the ground. Such a condition might decrease vaporizing rate instead of increasing it over aboveground installations.

Also, the guard and valve projecting just above the ground level makes them quite vulnerable to damage.—Ed.



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30 PLANTS . . .

10 STATES . . .

23 YEARS PRODUCTION
"KNOW HOW" . . .

63 REASONS TO WRITE,
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STANOLIND
Oil and Gas Company

LP GAS SALES SECTION
STANOLIND BUILDING
P. O. BOX 591, TULSA, OKLA.

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APRIL

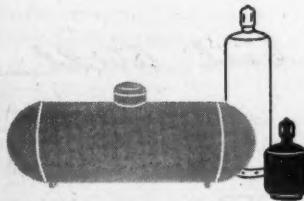


Beyond the Mains

AS THE RESULT OF A SUIT instigated by the American Gas Association, the United States District Court in San Francisco has handed down a decision enjoining four defendants from the unauthorized use of the AGA seal. This seal certifies that appliances carrying it have passed rigid tests and conform to national standards of safety, durability and performance. Evidence showed that the appliances produced and distributed by the defendants had not been tested or approved by the AGA. The defendants were ordered to cease the unauthorized use of the AGA certification trade mark or any imitation thereof; to surrender to the Association all unused seals in their possession and the plates or molds from which they were made; to remove the seals from all appliances made by them; to furnish the Association with a list of all persons selling their products and a complete list of the recipients of appliances illegally carrying the seal; finally, within 30 days after submitting such lists, to notify such recipients that these appliances had not been approved by AGA, do not meet its requirements, and are not authorized to bear the seal of the Association.

This suit was one of the first brought under the certification trademark provisions of the Lanham Act. The decision has demonstrated that the act is full of teeth, and has established a precedent on which our industry may be permanently rid of this type of chiseling.

AMONG THE NEWSPAPER CLIPPINGS that have crossed the editorial desk in the past month were two that were worthy of special comment. Both dealt with potential fires that were prevented by prompt and intelligent action on the part of public officers. A transport truck turned over on a curve because the driver went to sleep at the wheel. The state highway patrol handled the situation nicely by detouring traffic until escaping gas had dissipated. In the other case, a leak occurred in the storage tank piping while a tank in an industrial area was being filled. The fire department evacuated the area, sending workers in adjacent buildings away without their cars while the gas was being dissipated by playing high pressure water through the leaking vapor. Now for the bad part of both incidents -- the



Continued... →

Continued...



Beyond the Mains

driver whose transport overturned had been on duty for more than sixteen hours, and was in no condition to keep awake. And the leaking pipe was broken because the truck driver thought the ground was so level that the truck would not roll, so failed to block his wheels while the hose was connected. Obviously, without the human errors there would have been no potential disasters to prevent.

A VETERAN TRUCK DRIVER left one of the oldest operating companies in the LPG business recently because the pioneering days are over and there are no longer any opportunities. That same day the head of the firm stated, "The growth of our business is limited by the shortage of men of management caliber coming up through the ranks. We now have more branches than capable branch managers."

Which reminds us that "Management Institutes" are being conducted by a number of state LPG associations. An old timer is quoted as saying that the trouble with these institutes is that only managers attend them. We might need more institutes for the men down the line.

ONE OF THE THINGS THAT HAS IMPRESSED US in our trips among the bulk plants is the high percentage of LPG businesses in which the owner's wife works right along with the rest of the crew. This is an outgrowth, of course, of the old days when the boss drove his own truck and did all the rest of the heavy work around the place, while mama kept the books and answered the telephone between sessions of changing the baby and preparing meals.

ARE YOU PROUD OF YOUR SALESROOM and your appliance display? If not, you are missing sales and losing gas volume. Why not fix it up, and then do something to make the improvement worth while. There are quite a lot of people in your community or nearby places who influence the selection and purchase of appliances. Just offhand we can think of school-teachers, architects, builders, county home demonstrators, farm advisors, and farm bureau officials. You might know some more people you would like to have in for coffee, doughnuts, and possibly a little demonstration of better cooking by gas.

Carl Abel



David and Goliath in Miami

By Edward G. Dickson

THE south Florida climate does not require the usual type of heating found in most of the nation, but during the cold spells which occur now and then during the winter season, some house heating is needed. Two or three bathroom heaters plugged into the wall sockets will make the ordinary home reasonably comfortable during the brief period of unusual weather, but the Florida Power and Light Co. has campaigned vigorously against such use of electricity.

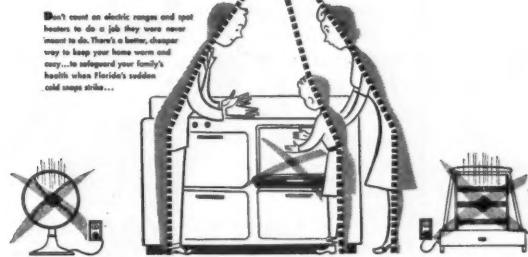
FPL has its peak load problems, just like the L. P. gas industry. Due to the influx of tourists, the electrical requirements are much heavier in winter than in summer, and to provide generating and transmission facilities to handle these occasional heating peaks would impose an investment out of all proportion to the normal requirements of the system. Hence, Florida Power and Light campaigns vigorously to keep people from heating electrically.

Naturally, this campaign is not directed toward getting their customers to heat with L. P. gas. Far from

it. Like any other power company, FPL is trying to keep its customers as far away as possible from the one fuel that can beat their own form of energy in cooking, water heating, house heating, and several other domestic applications. So the electrical octopus of Florida tells its customers frequently, and in large advertising space in the south Florida papers, that they should heat their homes with oil. The electrical company sells no oil or oil heating equipment. Inquiries which result from the advertising campaign are turned over to oil dealers or heating contractors, who in turn contact the prospective customer. Although oil dealers do some advertising on their own account, the intensive oil heating campaign carried on by the Florida Power and Light Co. is far greater than the combined efforts of the oil people themselves.

That puts a neat little competitive problem in the laps of the Gas Institute of Greater Miami, which includes the L. P. gas dealers and affiliated piped utilities and gas appliance

DON'T BE HALF WARM...



...BE OIL WARM!

Yes, modern oil house heating is here for Florida. Sleek new models to heat entire houses built into walls, roofs or closets... fit into fireplaces or under floors... out of sight, out of the way. Outside fuel tanks are available for remote oil house heating. Sounds wonderful, doesn't it? Well it is wonderful! See your dealer, or call our office, today!



NEW FREE BROCHURE
"Will help you plan fast, warm, economical heat for your home. A booklet that may save hours of time and money. Write for it later. Get your copy of Florida Power and Light Company offices, Miami."



MODERN OIL HOUSE HEATING

FLORIDA POWER & LIGHT COMPANY

A sample of the ammunition provided by Goliath (Florida Power & Light Co.) which caused the Gas Institute of Greater Miami to fight.

dealers. The institute has a modest advertising budget of around \$25,000 per year. The electric company spends probably ten times that amount in a year on behalf of the oil heating industry, besides a formidable additional budget for promoting the electrical services that it does want the customer to use. It's a David and Goliath deal, and the effectiveness of David's fight depends on the stones he has for his sling, and the accuracy of his aim. In this case, the armament is provided by Goliath, in a clever slogan, "Don't Be Half Warm—Be Oil Warm." Little David just picks it up and hurls it back, in deadly paraphrase. In effect, the Gas Institute of Greater Miami put the Florida Power and Light Co.'s heating campaign to work for themselves.

The gas institute variations included "Don't Be Half Right—Be Gas Right!"; "Don't Be Half Informed (the latter word was crossed out and written over it was the word Warm)—Get All the Facts!"; "Don't Be Half Sure—Be Gas Sure!"

Millions of American families use GAS... to be SURE! (For a GAS range gives you so much to be SURE of.)

You can be SURE of speed... for automatic GAS cooking is faster! You can be SURE of economy... for automatic GAS cooking is cheaper. You can be SURE of dependability... for automatic GAS cooking is most dependable.

There is no guesswork when you're cooking with GAS... for GAS cooking is controlled cooking... controlled by YOU! Turn the valve, and presto, you have heat in any amount you want... instantly! Turn the valve to "off" and your GAS range cools... instantly!

The modern, automatic GAS range offers many conveniences... conveniences designed to cut your "kitchen time" to the bone. You will find automatic GAS ranges in styles and sizes to fit your kitchen... and priced to fit your pocketbook.

Why not stop in and see your nearest GAS dealer? Let him tell you about the advantages of making your home an "ALL GAS HOME" ... it's sure to be a healthier and happier home because...

GAS IS DEPENDABLE!

MORE AND MORE PEOPLE ARE CHANGING TO GAS

THE GAS INSTITUTE OF AMERICA

Little David retaliates in kind by taking the Florida Power & Light Co.'s slogan and varying it.

The gas institute ads made no direct reference to the claims for oil heating. But the connection was obvious to consumers who had already heard or seen the oil heating assertions. After the attention-getting heads, the gas institute's ads went on with a positive, rather than a defensive, story of the advantages of various uses of gas.

The theme of the oil heating campaign was further capitalized on by the gas institute in the body of their ads. For example, the ad headed "Don't Be Half Sure... Be Gas Sure!" went on this way: "Millions of American families use GAS to be SURE! (For a GAS range gives you so much to be SURE of.) You can be SURE of speed... for automatic GAS cooking is faster! You can be SURE of economy... for automatic GAS cooking is cheaper. You can be SURE of dependability... for automatic GAS cooking is most dependable...."

The ad which caught attention

with "Don't Be Half Right... Be Gas Right!" went on to say: "Meet Mr. Average American, a man who's not easily satisfied. At his work, it's efficiency that counts... a job is a job done right, not half right!"

Continuing, this same ad asserted: "And he expects the same high standard of perfection to apply to the appliances in his home, be it his TV set, his radio, or his hot water heater! When Mr. Average American wants a hot shower, he wants it good and hot, not a lukewarm dribble.

"That is why so many men insist on automatic GAS hot water heaters. They know that GAS and only GAS gives constant hot water service... and gives it faster (three times faster). They know that GAS is economical... and most important, they know that GAS is dependable. They know that with a GAS hot water heater, the job is GAS right, not half right!"

More directly countering the "Oil Warm" claims was the gas institute

ad which said, "When the Thermometer Drops... Don't Be Half Ready, Be Gas Ready!"

"'Be prepared' is a motto especially important when it comes to space heating," this ad continued. "We don't have many cold snaps, but when they hit... they hit fast. And that is why it is wise for you to get a modern economical GAS space heater now... so that you will be GAS ready for the next cold snap.

"You'll like the GAS space heaters... they give you instant-starting, economical and dependable heat from the same fuel system that now serves your GAS appliances so efficiently. And a GAS heater is cleaner and faster, too. Your GAS system is designed to take the whole load... to give you any amount of heat you want, at any specific time.

"So why not be GAS ready? Your GAS dealer will be glad to add a GAS space heater to your system, now."

Thus, gas institute members feel the oil heating claims have not gone undefended and yet the gas institute has not been compelled to disrupt with a defensive campaign its positive approach to advertising gas appliances and services.

The gas institute endeavors to place a steady series of ads to keep the claims of the gas industry before the public as regularly as possible. That is the chief action taken by the institute to meet the advertising program of the competitors.

According to estimates of L. R. Chandler, president of the gas institute and chairman of a special committee which directs the advertising effort, each dollar spent by the gas institute for advertising and other group promotion activities returns to the industry in the form of sales of a hundred dollars in appliances and equipment, over and above what sales might normally be expected without the advertising program.

In the group advertising, the gas institute aims at building a reservoir of prospects for gas service and gas appliances, explained James E. Fussell, director. Individual dealer effort in sales and advertising then can follow through to tap this reservoir of prospects, conditioned as potential customers through the group promotion effort.

In one series of recent newspaper

ads, the gas institute appealed 100% to women. This series of quarter-page "fashion ads" ran in color in the women's section and each of the ads was the only one on its page in color.

Art work suggested a fashion ad, with a drawing of an attractively-gowned woman, and the title—"It's Smart"—further carried out this suggestion. A paragraph described the costume pictured in the ad, then the theme switched to the statement that "and the smart woman uses a GAS SPACE HEATER" or "and the smart woman uses a GAS STOVE."

Another recent gas institute series caught attention with statistical claims, such as "She Will Cook Over 5,000 Lbs. of Food in 1954," going on to describe the advantages of gas ranges.

Still another series of ads featured odd names used in other businesses as attention-getters. For example, one ad proclaimed "here is Dragon's Blood."

The explanation followed: "Things are not always what they seem, and

'Dragon's Blood' is nothing more than the name of a chemical powder used in the photo-engraving profession . . . 'Dragon's Blood' is an unusual tool of the trade."

Then the ad picked up with "Your water heater is a tool of the housewife's trade," and went on to detail the advantages of a gas water heater.

All gas institute ads try to include, by picture if not by text, reference to most gas appliances, since the institute aims for as many gas appliances as possible in a home. Where it is appropriate, the ads invite the reader to learn about the advantages of an "all GAS home."

Also, in most of the ads, appears the slogan, "Gas Is Dependable—More and More People Are Changing to Gas."

The gas institute's advertising program series are worked out by Mr. Chandler's special committee and by Mr. Fussell, the director. But the ideas for advertising series may be born in one of the regular monthly meetings of the L. P. gas dealers or of the institute.

The advertising program is the major activity of the gas institute and its course is charted, in general, by the discussions at these meetings of dealers. Then the special advertising committee takes over and maps out specific approaches to the institute's problems through advertising, consulting on various campaign problems with the director, who then carries out the campaigns decided on.

The institute members are looking forward hopefully to the possibility that their electrical competitor may give them another opportunity to put "reverse English" into another heating campaign next winter.

The L. P. gas dealers have a get-together every month to discuss their mutual problems. This is a no-holds-barred session, which often develops very frank discussions but at the same time points up the most pressing questions.

Following this meeting, the L. P. gas dealers are joined by the gas utility company representatives and by member appliance distributors in the regular gas institute session.

WHEN THE THERMOMETER DROPS...



DON'T BE HALF READY... BE GAS READY!

"Be prepared" is a motto especially important when it comes to space heating. We don't have many cold snaps, but when they hit... they hit fast. And that is why it is wise for you to get a modern, economical GAS space heater now... so that you will be GAS ready for the next cold snap.

You'll like the GAS space heaters... they give you instant-starting, economical and dependable heat from the space heat system that now serves over 1000 gas appliances so efficiently. And a GAS heater is cleaner and faster, too. Your GAS system is designed to take the whole load... to give you any amount of heat you need, at any specific time.

So why not be GAS ready? Your GAS dealer will be glad to add a GAS space heater to your system now.



Why not stop in and see your nearest GAS dealer? Let him tell you about the advantages of making your home an "ALL GAS HOME" ... it's sure to be a healthier and happier home because...

GAS IS DEPENDABLE!

MORE AND MORE PEOPLE ARE CHANGING TO GAS



DON'T BE HALF INFORMED... GET ALL THE FACTS!

IT'S A FACT...
That most new homes use GAS for cooking... that most new homes that have GAS RADIATORS are the best, and that when it comes to speed and economy, GAS CAN'T BE BEAT. Here is proof that you are best for you, too.

IT'S A FACT...

That the average family uses 1000 gallons of hot water every week... and that the greater demand for water comes at specific times of the day. Here is where your GAS hot water heater outshines them all, for GAS gives you CONSTANT HOT WATER SERVICE... IT'S CHEAPER... AND DEPENDABLE in any sort of weather.

IT'S A FACT...

That your average GAS CLOTHES DRYER uses one load in one-half the time of electric dryers... UP TO FOUR TIMES CHEAPER. GAS dries your clothes faster, too... UP TO

15 TIMES FASTER than the old "ice box." GAS drying is automatic—just set the required time, the heat you want, and your GAS dryer does the rest.

IT'S A FACT...

That only Sear's, the GAS refrigerator, has no moving parts to get out of order... and that it is the quietest and most economical. Your GAS refrigerator is SILENT. You can depend upon your GAS refrigerator... and you'll feel all-right about it. Here is where the variety of styles and sizes of GAS refrigerators available at your dealers... styled to fit your kitchen, priced to fit your purse.

IT'S A FACT...

That GAS HEATING gives you cleaner, more comfortable heat... and that your GAS space heater, TOU control the heat... you get as much as you want, and you know that you can depend on GAS.



Why not stop in and see your nearest GAS dealer? Let him tell you about the advantages of making your home an "ALL GAS HOME" ... it's sure to be a healthier and happier home because...

GAS IS DEPENDABLE!

MORE AND MORE PEOPLE ARE CHANGING TO GAS



Rather than being defensive, the gas institute ads told the positive story of the advantages of gas. The body of the gas ads further capitalized on the theme of the oil ads.

Seattle Public Library

The gas institute ads made no direct reference to the claims for oil but the connection was obvious to the consumer who had already seen the oil ads.

A. O. Leech, gas sales manager for Portland Gas & Coke Co., and **Don Slocum**, Multnomah Fuel Co. sales manager, discuss a prospective commercial LPG customer located where it cannot be served by the utility. Gasco frequently refers such prospective business to LPG dealers.

Cooperation Pays Dividends for Utility and LPG Dealers

By William H. Osborne

HERE may have been a time when LPG dealers in the Portland, Ore., area considered themselves at war with Portland Gas & Coke Co.—a utility which markets manufactured oil-gas in the Willamette River Valley of Oregon and in southwestern Washington. But today all the cannon on both sides are spiked.

Recently a letter from the utility went out to architects, building contractors, gas appliance dealers, and LPG dealers which read in part as follows:

"The demand for gas for space heating purposes has increased to such a point that the company is compelled to discontinue accepting applications for space heating except in certain areas where the capacity of its facilities has not been exhausted. In localities where gas for space heating is not presently available we suggest that you select heating equipment that can easily be converted to natural gas at some later date."

A map outlining the restricted area was enclosed with the letter. This was a signal to LPG dealers that future applications for space heating in the restricted area would be referred to them. LPG dealers knew that they could count on cooperation from the

utility; in fact, "GASCO" would actually help them sell prospective customers an LPG installation which could later be converted to natural gas.

Although this letter went out very recently, similar letters have been going out from "GASCO" sales managers for the past ten years. This cooperative arrangement was born at the beginning of World War II. Prior to the war the prospect of natural gas being piped into the Portland Gas & Coke Co.'s mains had constantly hovered around the corner. Negotiations had been carried on intermittently with many contractors and agencies but for various reasons natural gas did not arrive. During this period "GASCO" did not expand its oil-gas manufacturing facilities.

Therefore, when World War II came along, Portland Gas & Coke Co. was faced with a problem which seemed insurmountable. With a war to fight, the Pacific Northwest with its great harbors and ports became a boom territory. Several shipyards were built at Portland. Almost overnight Portland became an important port of embarkation for the Orient. Warehouses were constructed to store military supplies. Lumber mills, and manufacturers using by-

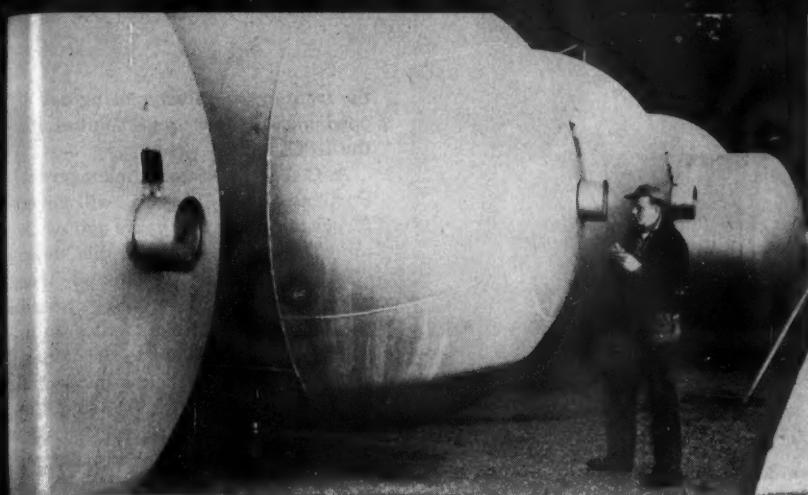
products of lumbering in the defense effort, expanded their facilities and worked around the clock.

All these activities required gas for heat and power. Coal production in the Pacific Northwest is insignificant. Electric power expansion during the lean thirties had been negligible except for a few dams built by the federal government. None of these dams had reached their maximum generating capacity. Appliances for burning gas were simple to manufacture and required fewer strategic metals than those which burn other fuels—therefore, the quickest way to get additional heat and power.

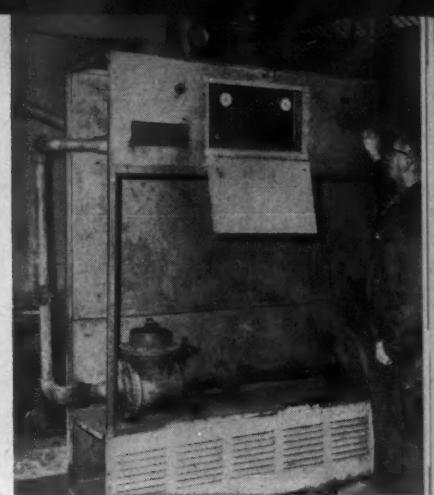
LPG dealers helped solve the problem by installing their equipment where gas was needed and where "GASCO's" lines did not reach. The utility and the LPG dealers found it was to their mutual advantage to work together on these projects. Neither the LPG dealers nor "GASCO" would profit from the installation of electric appliances.

Portland Gas & Coke Co. engineers partially solved their problem of supplying customers by installing equipment for blending butane and oil-gas to increase their volume. Other requests for service which the utility could not provide were referred to





Left: These LPG storage tanks at Portland Gas & Coke Co. represent 15% or 115,000 gallons of Gasco's 665,350 gallon storage capacity. Twenty tanks of various sizes are strategically situated on the distribution system. **Right:** Butane-air mixer tube and controls of a 50,000 cu ft per hour unit at Portland Gas & Coke Co. Tube is one of six which mix butane vapor coming from hot water vaporizer (in background at left) with proper proportion of air.



LPG dealers.

But the cooperation did not end there. "GASCO" engineers worked with LPG dealers to standardize piping and fittings. Standard installations meant that LPG dealers could purchase pipe and fittings from "GASCO," thus avoiding heavy inventories of material. Standard installations also meant that a customer could convert to natural gas by merely changing an orifice in the burner.

After the war, "GASCO's" customer list continued to grow. Negotiations for bringing natural gas into the area dragged on. With the growing acceptance of gas it became necessary for the utility to expand oil-gas manufacturing facilities or install more butane blending stations. Management decided to install additional butane blending equipment and currently is one of the largest butane consumers in the Northwest.

Northwest electric utilities are so eager to corner the market that they are constantly reaching out and overselling their own generating capacity as well as the power generated by federal dams. For this reason there is constant agitation for new dams in the Northwest—partly inspired by electric utilities who want the federal government to generate cheap power for them to market. The federal government has in effect subsidized electricity in the Northwest but gas production has received no such benefits.

Top management at "GASCO" realized that by assisting LPG dealers in selling installations beyond "GASCO's" lines a future market for natural gas would be created. By

creating potential markets for natural gas the utility could expand with more confidence.

The Pacific Northwest is literally virgin territory from the standpoint of economic development. There will be plenty of room for LPG dealers to expand after natural gas is piped into the area and distributed to the main centers of population of the Willamette River Valley. Beyond the rim of the valley a slow but steady development is taking place. Electric rates are rising and with new industry moving into the valley to absorb additional electricity the area beyond the valley should be easier for the LPG dealer to penetrate.

According to Don Slocum, sales manager for Multnomah Fuel Co., Portland LPG dealer, cooperation between the gas utility and LPG dealers is absolutely essential in this area. The electric utilities pool their resources to fight for more hydroelectric dams and they aggressively sell the idea that their rates are the best in the country. Because of these activities a large segment of the population believes that any form of gas is too costly. Therefore, Mr. Slocum feels that cooperation in the face of a common enemy makes nothing more than good business sense.

"In western Oregon there exists a large area with great undeveloped resources and enough potential markets for all the utilities to continue expansion for many years," Don Slocum explained. "For this reason there is no point in considering Portland Gas & Coke Co. a competitor. In many cases our installations are made with the almost sure knowledge that one day 'GASCO' may ex-

tend its lines and take over our customers. In such cases we figure our installations so that the customer will not have to make expensive conversions—all they will have to do to burn natural gas is change the orifice in the burner."

Mr. Slocum's words sound like beautiful music to "GASCO," but how does this cooperation pay off for the LPG dealer? Don Slocum had the answers ready.

"It pays off in several ways," he explained. "Because of our cooperation we are able to give our customers better service, more efficient installations and price benefits. Here are some of the reasons why:

"1. The extensive and modern laboratory facilities of 'GASCO' are available to LPG dealers.

"2. The repair shop facilities of 'GASCO' are available to us. This is very helpful to us as repairs and adjustments to certain meters and controls require tools and equipment which local LPG dealers do not have. 'GASCO' makes these repairs for us for a reasonable charge.

"3. The gas company carries a large service parts inventory. We can purchase any service part from them which means we don't have to tie up a large amount of working capital in parts inventories.

"4. Technical advice to LPG dealers in figuring installations is provided gratis by 'GASCO.' Engineers from the gas company furnish technical data to assist LPG dealers in making estimates on jobs.

"5. Requests received by 'GASCO' for service which the utility cannot provide are always referred to LPG dealers. If such requests come from



This well stocked storeroom is a convenient place to pick up parts, such as bumpers, pilots and orifices, in cases where a customer moves into city gas territory. In this type of business opportunity exchange by utilities and LPG dealers, the latter can cash in on the conversion job.

areas where 'GASCO' may one day have service, the utility sends salesmen out to help the LPG dealer close the deal."

What happens in areas where there is no cooperation between "GASCO" and LPG dealers? Don Slocum cited two examples. Dalles, Ore., situated 130 miles east of Portland, is a sparsely settled area. The utility has no plans in the making for eventually extending their lines in that direction. Electricity is available from three sources: REA, PUD, and Pacific Power & Light Co. There is a constant price war between the three power groups with the result that LPG dealers have a hard time staying in business.

Approximately 100 miles west of

Checking burner assemblies for possible future convertability from propane to city gas is a service made available to butane-propane dealers by Portland Gas & Coke Co.'s well equipped appliance testing laboratory.

Portland, a new million dollar Tillamook cheese plant was recently built. LPG men negotiated with the builders, but because "GASCO" could not guarantee natural gas lines into that area within the next five years the electric boys plowed under the LPG men.

In areas closer to Portland the situation has been entirely different. For example, specifications call for gas overhead heaters in all Safeway Stores. In nearby localities where gas mains do not now exist but presumably will be pushed in the future, LPG dealers can sell their installations to the grocery chain. Gas mains will eventually reach these areas and the LPG dealers will have to move further out in the rural areas. But

Propane-fired heaters are used to improve working conditions in Oregon Steel Mills plant in Portland. Heating equipment, installed by the Lynch Co., includes nine unit heaters, a circulating heater and overhead radiant heater.

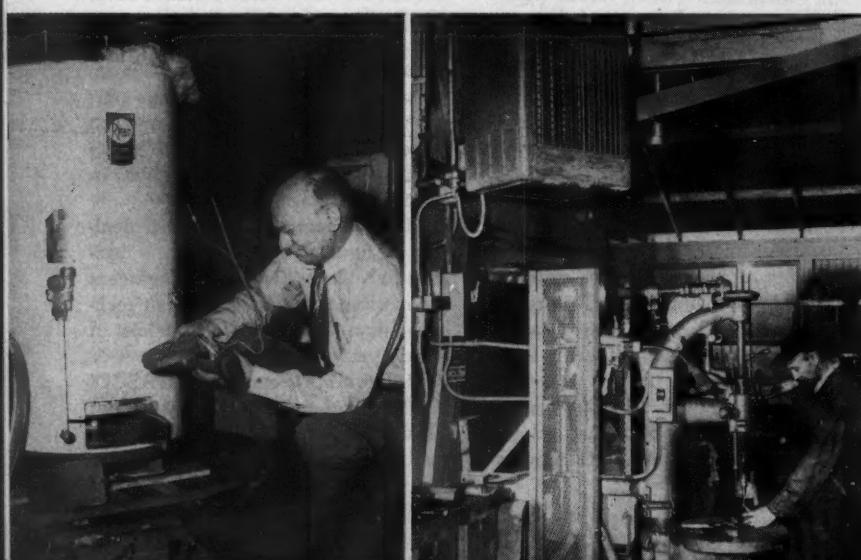
the frontiers are always being developed making new opportunities for the LPG dealer.

A. O. Leech, gas sales manager for Portland Gas & Coke Co., will never forget the night two years ago when an LPG dealer saved his neck. "GASCO's" main to Salem and other parts of the Willamette Valley crossed the Tualatin River eight miles south of Portland suspended to the underside of a bridge. On this particular night a logging truck crossing the bridge hooked the cantilever section which caused the bridge to collapse, breaking the gas main. Service to the valley was disrupted for nearly 24 hours.

The Statesman, Salem's oldest newspaper, heats its lead pots with gas and for the first time since publication started it looked like the morning edition would not come out. The publisher phoned "GASCO" and explained his predicament. Mr. Leech rushed to Salem and got the LPG dealer out of bed around midnight. Portable LPG equipment was installed, the lead pots heated, and the morning edition rolled off the press only a few hours late.

"GASCO" and LPG dealers realize that they have a selling job to do in the Northwest. Electric utilities are tough competitors in this area. They can each get their share of the business by working together. Creating a potential market for gas is the objective of the utility and LPG dealers and the type of gas is not too important in the overall picture.

Gas-fired water heater supplies hot water—the medium of heat transfer—to butane vaporizers used by Portland Gas & Coke Co. Vaporizers are located behind butane-air mixer tubes and controls as shown in picture at left.



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Above: Live demonstrations are constantly made to point up ease and economy of modern gas driers for customers. Right: Sample of "Personalized" direct mail letter used to promote sales of driers.

Demonstrations and Direct Mail Sell Driers for Dealers

By Ted Knight

"THE gas drier is the dealer's best sales appliance today," says George W. Gross, who operates a bottled gas business near York, Pa.

"Most of the gas appliances that we have to sell today, other than ranges, are replacements," says Mr. Gross. "But all drier business is new. People are just beginning to 'size up' driers and their interest is growing. And if bottled gas dealers will make a real effort to attract this business, it can be had."

Attractive display space is prominent feature of this modern building used by bottled gas dealer near York, Pa.



A new gas appliance can do much to stimulate new business and sales. And Mr. Gross is doing just that. He is promoting the drier by direct mail, talking it up to customers when serving gas and store displays. This combination has been very helpful in making many sales and promoting future business opportunities.

A live washer and drier display was made in the store. A bundle of clothes is always ready for demonstration in either appliance. Whenever any customer comes to the store, they are asked if they have a drier. If not, they are given a demonstration regardless of whether they are interested in buying at that time or not.

"All we want to do is get our customer 'drier-minded,'" says Mrs. Gross, who helps her husband in the business and is the demonstrator. "We know that the customer will remember it during inclement weather when they will not be able to dry their clothes. So just informing customers of a drier is an important entree to a sale."

Direct mail is sent to all customers

Dear Mrs. Homemaker:

You think salesmen bother you!

For every salesman who rings your bell, we must get ten or eleven of them. Because when they sell us, they sell a carton or a gross or a carload.

And some of them can talk the hind leg off a mule.

Consequently, we've gotten pretty wary of fast-talking salesmen. We don't buy until we've read everything there is to read about the product, beat on it, tried it, tested it, abused it, and read the fine print on the guarantee. Then we get our service and installation man to do the same.

We don't buy until we're sure because we don't want to sell until we're sure. And we're dead sure about the new Automatic Dryer described in the attached folder. Incidentally, we tested the folder too. It tells the truth, and we're willing to back every statement in it . . . or we don't send it out.

So read about the new Automatic Dryer. Then drop in the store for a demonstration; we're open Friday evenings if you can't get in during the week. (And when you do come in we don't twist your arm to make a sale—we just don't operate that way.)

Sincerely yours,

A Trade-In Can be a Bigger "Trade-Out"

Top: The Bohman-Warne used appliance store is operated in the company's warehouse, thereby reducing the overhead costs.

Right: Luther Phillips, sales manager, displays some of the trade-ins in his used appliance store.

BOHMAN-WARNE INC., which provides Pyrofax gas service in Hagerstown, Md., has developed a program which has taken the used appliance phase of its operations out of the red, and at the same time is expanding its L. P. gas business.

Faced a few years ago with a warehouse crowded with traded-in stoves, refrigerators, and the like, Bohman-Warne's top executives developed a "proven sales plan" for selling these old appliances.

Merchandising of traded-in appliances was put on a strict business basis, operated as a separate branch of the business with a separate store-room just for retailing trade-ins.

"We went into this venture," explains Luther E. Phillips, sales manager for the Maryland firm, "not to make a profit, but to create more volume for our L. P. gas business and to encourage the sale of more new appliances."

Since 1949, the theory has proven itself time and time again. L. P. gas

sales are up, and the new appliance business is booming.

"The secret of our success," says Mr. Phillips, "is the applying of the same merchandising procedures we normally use in our new appliance business. We guarantee all of our traded-in appliances when we sell them, with a 90 day written warranty. And at any time during those 90 days the owner can get all of his purchase price back by purchasing a new appliance."

The Bohman-Warne sales manager explains that the backbone of his program is a set of simple, but very essential records.

"We keep a close check on the facts, so that we know from month to month just where we are going, profitwise, in our used appliance operations. Of course, we are going to lose money for some of our trade-ins, but in the overall picture we strive to at least break even."

Bohman-Warne's "proven sales plan" is considered rather unique in

the L. P. gas business, and in the general appliance trade it has served as the nucleus for a nationwide trade-in sales plan for an appliance manufacturer (Kelvinator).

"We started this thing," Mr. Phillips says, "because a few years ago we found ourselves with too many used appliances that didn't seem to be moving fast enough."

"We soon discovered that one of the secrets of this trade-in sales operation is inventory control. Keep simple records for inventory control. Keep records that show all the facts and you will know where you are going."

Here, in detail, is how the Bohman-Warne plan works:

A customer wants to buy a new appliance, asking the company for a trade-in offer on the old appliance. Mr. Phillips, the sales manager, and Donald Harrington, the firm's service manager, examine the old appliance to decide what trade-in allowance should be made. "Sales and service





A used appliance store manager touches up the finish of appliances in his spare time. Exterior beauty is a good selling point.

must both take part in this decision," explains Mr. Phillips. "The service manager decides if we can economically recondition the appliance for resale."

Once the trade-in price is decided, the next step is to pick up the appliance and bring it to the service department. While the service personnel goes to work on the reconditioning job, the sales department makes the first of several entries in its records.

An individual card is made out for each piece of merchandise taken in on a trade. This card lists the owner's name, amount of trade-in price, date of transaction, and the company's assigned serial number for the deal.

Mr. Phillips keeps a master sheet containing all this data in summary form. This data sheet also lists the exact amount of money the company spends on reconditioning and preparing the appliance for resale, the exact amount for which the appliance is resold, and the exact amount of profit or loss on each transaction.

"You've got to keep a close inventory control and try to keep this merchandise continuously turning over," says Mr. Phillips. "It is also very important, from the profit angle, to spend as little as possible in the reconditioning process."

Now here is where Bohman-Warne has profited by its several years of experience in the trade-in business.

"We have proven that it pays to

spend more of our money on making our used appliances look more attractive than to make them run smoother," Mr. Phillips reports. "Of course, we make sure each and every used appliance we sell is running alright, but we spend most of our money on beauty—fixing up the broiler trays, cleaning the oven. Every used refrigerator is refinished on the outside before we sell it."

Besides making their used appliances more attractive to the customer, Bohman-Warne also has another ace up its sleeve.

"One of our big secrets," says the sales manager, "is the 90 day warranty. If the unit fails or needs repairs in those 90 days, we provide free service. If the customer wants to get rid of the used appliance and buy a new one within those 90 days, we allow him the full price he paid for the used appliance.

"It was surprising to us how many customers have been taking us up on this new appliance offer within the 90 day period. Some of our LPG ranges, for example, have been sold six and seven times within warranty periods by persons who decided they wanted new ones."

This business of spending more money on appearance than on machinery in traded-in appliances has really proved itself, too. Bohman-Warne, when it started this phase of its operations, allowed in its resale price for at least two service calls during the 90 day warranty period.

"The way it has worked out," Mr. Phillips says, "we have been making very few service calls at all. In view of this trend, we are in a position to offer more money for our trade-ins in our new appliance department. And we are in a position to sell our used equipment at lower prices."

"The whole secret to this business is to keep good simple records which show where you are going financially, and you can feel your way along on this matter of prices."

In order to keep his finger on the pulse of the used appliance phase of the Maryland business, Mr. Phillips says he prepares a quarterly profit and loss statement. This statement shows a true picture of the operations, charging against the used appliance operations the cost of merchandising, advertising, branch store costs, etc.

Here's a typical transaction, recorded on the books: A L. P. gas re-

frigerator was traded in on a new one, and Bohman-Warne allowed \$35 to the person who bought the new appliance. The company spent \$2.89 on the mechanical operation, \$10 for refinishing the exterior, and \$10.55 for gaskets, shelves, etc., on the interior. The total expense to the firm was \$58.44. The used refrigerator was sold for \$74.50.

Bohman-Warne retails its reconditioned appliances at a separate store. In order to keep down the overhead this separate store is conducted in a street-level room with a business front in the firm's warehouse building some six blocks from the center of the business district.

The store is operated by one man. This man, who works on a salary-commission basis, not only sells the appliance, but handles minor reconditioning work in his spare time, and assists with loading and moving operations involving the appliances.

"By having the separate store we can do a better job of promotion," says Mr. Phillips. "We advertise heavily the location of our used appliance store. When merchandise is moving too slow, we work up a publicity program. One time we gave free hot dogs and soft drinks to everyone who turned out to look at our goods. Another time we had a \$1 sale—buy one used appliance such as a stove at our regular price and get a washing machine for \$1 more."

Bohman-Warne uses its L. P. gas salesmen, familiar with the rural routes, in its used appliance operations, too. By doing this the operation directly helps to expand the L. P. gas business volume.

For example, when personnel conditions permit, the L. P. gas salesmen load used stoves, refrigerators and heaters onto a pickup truck and travel through their area. Their aim is to sell used appliances to the poorer rural residents who now might be using a less efficient means of cooking and heating.

"We aim to sell used appliances to those people who can't afford to buy new ones . . . persons who now use kerosene or wood. This provides more turnover for our used appliances and builds up our customers for L. P. gas."

In summary, then, Bohman-Warne has found the business-like operation of its trade-in business to be a profitable operation from the long range standpoint.

1954

SALES PROMOTION
PLAN BOOK

1954

AGA
SALES PROMOTION AID

MATCHLESS

Keep

Samples on this page indicate the extensive printed promotion available to dealers. These hard-hitting sales aids can boost your business.

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WE'RE already one-quarter of the way through 1954. How's business?

Are those appliances moving as fast as they should? Is the domestic load (which after all is the foundation of the business) growing as it should? Are the salesmen showing the old competitive spirit, and is local advertising and promotion bringing the desired results?

Whether the answers are all "yes," all "no," or a little of each, it will pay to keep an eye on what the gas utilities are doing. A little coattail riding would certainly not be frowned on, and it would be good business for everyone. Might even change a few of those "no's" into "yeses."

The American Gas Association and its hundreds of utility company members are pouring millions of dollars into advertising and promotion in 1954, and it would be deliberately overlooking a golden opportunity if

heaters; from September through November, commercial cooking; and for November and December, clothes dryers again.

Supplementing this calendarized program is a continuing 12-month promotion of the New Freedom Gas Kitchen and Laundry theme.

Tying the entire package together is the "Only Gas . . ." slogan—"Only Gas Does So Much—Costs So Little"—"Only Gas Dries Clothes So Fast—Costs So Little to Run"—"Only Gas Automatic Water Heaters Give Hot Water Three Times Faster—Costs Less, Too!" etc.

The AGA plan is an integral part of its well-publicized, war-born "PAR" (promotion—advertising—research) program. During 1953, utility company members contributed \$2,150,000 to support this three-way affair, and with receipts from sales of materials and other revenues added to the kitty, a total of \$2,225,000 was available for spending.

brief, assume responsibility for developing sales in their own territories, cooperate with builders and architects on sales of appliances to new homes, encourage upgrading, assist dealers in appliance financing, provide more-than-adequate servicing, assist in training of appliance installers, etc. Jointly the two groups will cultivate the market for automatic gas ranges, promote the sale of approved and upgraded equipment, and develop market sales potentials.

The manufacturer, on his part, will work to upgrade his own products, work with architects and builders, spend more on advertising and promotion, insure the integrity of his warranties, assist in training of installers and servicemen, etc.

Because of the lumbering fashion in which large associations must by their very nature move, the program is not too far along as yet, but it has inspired localized and individual action among both utilities and manu-

An Eye On The Ally

LPG dealers should fail to capitalize on this fact. Our own National Committee for LP-Gas Promotion is doing an excellent job, and its efforts will continue to bear fruit for the local dealer. But the AGA's continuing program features some different angles that offer each dealer additional sales help.

Any activity keyed to the AGA's program should supplement, not supplant, the LPG industry's own efforts. The national committee is now into its 11th round of advertising, stressing the automatic gas range. Kits of tie-in materials have already have been made available.

The AGA's efforts are scheduled on a different basis. A calendar of promotion was devised for the year 1954, and advertising and promotion activities are timed for seasonal selling. In February and March, water heaters were featured. For April and May, gas ranges and air conditioning are the themes. In June and July, it will be incinerators and refrigerators; September and October, the Old Stove Roundup, a well established feature among all dealers, and water

Of this amount, \$750,000 went toward research, much of which will be evident on new appliance models within the next several years. Combined with the advertising-promotion budget were the campaigns of manufacturers, and the local-level expenditures of utilities and dealers; so, en toto, many millions of dollars were spent in this work nationally.

Beyond this, a reawakening to the necessity for strong merchandising is taking place nationally among utility companies. Troubled by the slipping ratio between appliance sales vs. gas volume growth postwar (the latter has been phenomenal), utilities who turned their backs on direct selling and strong merchandising policies a decade ago are now casting affectionate glances toward local retail appliance outlets. GAMA and the AGA have gotten together on a so-called "Gas Industry Development Program," which sets up a 15-point agenda for the cooperating utility company, an 18-point campaign for manufacturers, and several joint activities to tie the whole together.

Under GID, the utilities will, in

facturers. The lavish campaigns of such top appliance manufacturers as Caloric and Magic Chef were encouraged, at least in part, by the prospects of widespread support by the GID campaign. "Matchless" range sales drives have been conducted in several major cities, including Chicago and Philadelphia, which carried on a friendly inter-city rivalry through a joint sales contest last fall and early winter.

In short, all segments of the industry are digging deep into their pockets for more funds in an effort to match the huge budgets of such electric titans as GE and Westinghouse, and the momentum of this work will carry right through to the dealer on the local level.

Here's an example of how a typical AGA campaign was worked out—the February-March campaign on automatic water heaters, just completed:

Objectives: To upgrade quality and size of water heaters in the replacement and new home markets, and to sell men on buying gas dryers for their wives.

Advertising: Cartoon-type ads for



COMPANY NAME HERE

Details and Mail
Price
\$1.50

Promotion Bureau, American Gas Association, 420 Lexington Ave., New York 17, N. Y.
Please send me _____ mats of Water-Heater Advertisement #4 at \$1.50 each.
Company Name _____
Address _____

A little newspaper advertising can go a long way to help overcome the buyers' market.

water heaters, eight quarter-page insertions, one per week, running from February through March in the *Saturday Evening Post*. Reproduced as three-column newspaper mats, each ad was made available for \$1.50 each. For clothes dryers, similar cartoon-type ads, three half-page insertions in *Better Homes & Gardens* and three two-thirds pages in *Parents' Magazine*, February through April. Newspaper mats also available.

Advertising aids: *Saturday Evening Post* offered a free merchandising kit for window posters, display cards, stickers, tags, and Post logos.

Door openers: Thermometers especially produced for demonstrations or home calls, to prove to housewives that kitchen faucet hot water is inadequate for 160° temperatures advised by experts for automatic dishwashers and many automatic laundering tasks. Available for 22 cents each, Pencil Specialty Co., Hoboken, N. J.

Promotion display kits: For water heating campaign, a 13-piece kit with giant poster for mounting on an automatic gas water heater, two large streamers, a set of four self-mounting posters, six jumbo price tags. Total cost: \$2.95. For dryer campaign, 16-piece set with four self-mounting pieces, two easel-backed displays, two window or wall streamers, six jumbo price tags. Cost: \$5.20.

In addition to the sales aids, AGA recommended that five publications

in its well-stocked catalog of materials be utilized. Part of the "Big 10" series are three eight-page full-color consumer booklets for sales-floor or special promotion giveaways: "Answers to the 10 Biggest Questions on Water-Heating," "You'll Be in Clover 10 Times Over with a New Automatic Clothes Dryer," and "10 Pointers on Modern Laundry Planning." They cost: 100 to 999, same subject, 3 cents each; 1,000 to 9,999, same subject, 2½ cents each; and 10,000 and up, same subject, 2½ cents each.

Two pocket sales manuals for utility and dealer salesmen are: "Automatic Gas Water Heater Sales Maker," and "Automatic Gas Clothes Dryer Sales Maker," costing 15 cents each or 10 cents each for 10 or more copies.

Both AGA kits, for automatic gas water heaters and dryers, as well as all five publications, were available from AGA.

Primarily for the use of large companies, car cards, 24-sheet billboard posters, TV spots, and similar aids were also offered.

The 1954 Catalog of Sales Aids in itself is a fascinating compendium of premiums, awards, consumer booklets, and sales maker manuals and straight sales aids. Premiums and awards are grouped according to price, and in the under-10-cents category are included inscribed pot holders, balloons, paper napkins, salt and pepper shakers, and even "flame-pops," lollipops in cellophane inscribed "Gas Has Got It," and depicting the familiar gas flame. Aprons, tie clasps, clip pencils, and cowboy hats are among the enticing premiums in the 11-cents-to-\$1 bracket; and for \$1.01 and up, glasses, dinnerware sets, towels, french fry baskets, playing cards, and innumerable other awards may be had.

Consumer booklets include the Big 10 series, the "Food Is Fun" booklet, the cartoon book "History of Gas," etc.

Sales maker manuals, decals, postage meter slugs, and water heater selectors are a few of the interesting sales aids catalogued.

Today, attention turns on the April-May plan for all-year air conditioning and househeating, with the theme "Only Gas Gives Greatest All-Season Comfort." The objectives: to replace other fuels with gas, to upgrade installations, to push all-year air condi-

tioning by capitalizing on the increasing popularity of gas for househeating...

... and to the April-May "Spring Showing of Matchless Automatic Gas Ranges." The theme: "Only Gas Gives You Matchless Cooking Performance."

Available materials are similar to those detailed in the February-March campaign on automatic water heaters. Detailed information on this and succeeding campaigns for 1954 may be obtained from the American Gas Association, 420 Lexington Ave., New York 17.



Are YOU living in "WET WASH" house?

We Wash House is a lank, dank place,
With wet wash slapping you in the face.
The towels are scratchy and stiff as tin,
And look like something the cat dragged in.
The wife is cranky from hanging clothes,
And this is the way your money goes:
Extra sheets, extra cases,
Extra clothes for which you pay—
Waiting around for laundry day!

The happy solution

But what a change the very minute
You put a Gas clothes dryer in it!
Morning, evening, rain or shine,
The laundry's finished any time.
The fluffy towels enchant the Mrs.
In fact the air is full of kisses.
Your woes and worries have all passed,
For only Gas dries clothes so beautifully,
... so efficiently, so economically, so fast!

Easy payment terms
arranged. Come in and
see one of our fine auto-
matic Gas dryers... A
BRAND NAME is priced
at \$100.00.



Only Gas dries clothes so fast... costs so little to run!

Company name here

Details and Mail
Price
\$1.50

Promotion Bureau, American Gas Association
420 Lexington Avenue, New York 17, N. Y.
Please send me _____ mats of Clothes Dryer advertisement #2 at \$1.50 each.
Company Name _____
Address _____

The secret of any successful advertising is continuity.

Announcing a New Series by Carl Abell

"How To Beat Electrical Competition"

and a New Selling Tool,

the COMPETITIVE COST CALCULATOR

FOR the past several months we have been developing a plan and preparing to publish a series of articles under the subject, "How to Beat Electrical Competition." Not how to meet electrical competition, but how to beat it. All of our recent reader interest surveys, and the personal interviews of our staff members with LPG operators, indicate that this rates as Number One in the current problems of the industry (no pun).

We can only beat our competition by creating a greater demand for our fuel than they can create for their energy. Demand comes from installed appliances, which must be sold before they can consume gas or energy. Beating our competition begins with outselling them in the appliance field. One big battle through the next few years will be for major appliance sales.

The more successful merchandisers among the L. P. gas distributors tell us that the most effective way to sell appliances is to demonstrate their advantages. People discount what salesmen tell them, but they believe what salesmen show them, and they stand up and fight for what they show themselves. Prospective purchasers are interested in two major aspects—results and cost. We put results first, because in most cases this proves to be the most important factor. Results justify cost. It emphasizes still further the importance of demonstration. Demonstration is "showing results clearly." And L. P. gas will outdemonstrate electricity, because it will outperform electricity.

This gives us the keynote for the "opener" of our series on "How To Beat Electrical Competition." Many other factors will be included in the series, which will continue for several months. The central aim of the series will be to develop an integrated, coordinated program for the entire industry.

But let's take one step at a time. It seems logical to open the series with the May LPGA Convention Issue. At that time attention will be focused on the newest and most advanced LPG appliances, many of which have features and advantages that will make them more readily saleable than similar appliances have been in the past. They have more advantages to demonstrate.

Our May issue will be a complete departure from convention issues of the past. While it will be devoted mainly to appliances, it will not be the customary neutralized, emasculated catalog of this year's offerings. The catalog idea flatters the ego of the manufacturer, but it has little tangible effect on the cash register of either the manufacturer or the dealer. As Skinny Ennis has told so many convention audiences, "Nothing happens until somebody makes a sale." There's no point in just telling them—let's sell them.

That is the keynote of the May issue of *BUTANE-PROPANE News*. It will be officially number one of the series on "How To Beat Electrical Competition." Its pages will concentrate on effective demonstrations which sell domestic ranges, water heaters, clothes dryers, commercial cooking appliances, and other major gas-consuming appliances and equipment.

Succeeding issues will cover other important aspects of the competitive problem, outlining strategy and tactics for creating the desire for and reducing the sales resistances against our product; advertising programs that pay off; public relations plans which produce; the vulnerable spots in the electrical program—this can go on and on.

In last month's issue (page 33) we staged a preliminary bout. It wasn't

out of sequence—it was merely an emergency measure, made necessary by the publication of USDA Technical Bulletin No. 1073, "Comparative Utilization of Energy by Household Electric and Liquefied Petroleum Gas Ranges, Refrigerators and Water Heaters." This bulletin created a totally erroneous impression of the comparative desirability of LPG and electrical appliances, but offered the golden opportunity to cash in on the electrical industry's expenditure by presenting a constructive means of turning that document into a potent sales weapon for our industry. In case you missed the significance of the article, we suggest that you re-read it and plan to put the information to work increasing your appliance sales.

After that article went to press, one of our staff members brought in an idea for a simple slide rule type competitive cost calculator with which it is possible to show the prospect, in a single line of type one inch long, how much it costs to use electricity, and how little it costs to use L. P. gas, based on his local rates and the figures for average consumption shown in USDA Bulletin 1073. It doesn't fiddle with fractions—it brings out the answer in dollars per year.

This COMPETITIVE COST CALCULATOR will be featured in our booth at the LPGA Convention, Chicago, May 9-12, and at the same time it will be made available to all subscribers to *BUTANE-PROPANE News*. The Calculator will be a part of the Electrical Competition program, and we will show you time after time how to use it to make selling easier. It is so simple that any schoolboy can use it, and any housewife can understand it. It disposes of any economy claims the electrical salesman can make. After that, a convincing demonstration does the job.



exclusive

PART 5

Servicing Control Equipment

POWER PILE (Self Energized) CONTROL EQUIPMENT

By **Vincent P. Lang**
Technical Editor
Minneapolis-Honeywell
Regulator Co.
Minneapolis, Minnesota

The controls treated in this article have a basically different principle of operation from those discussed in previous articles in this series.

Since you are important to the successful use of this equipment, the following article is geared to assist you when installing or servicing self-powered gas control systems.

The Self-Powered Gas Control System

There is one classification of electrically operated control systems that generates its own operating power without assistance from an outside electrical power line source or generating unit. When connected to a suitable gas supply, including LPG, and functioning as intended, it is completely self-sustaining and does a complete job of system control.

The basic units of this type of system are: a pilot burner, a gas valve and a thermostat. A pilot safety valve can be added to this combination for LPG applications.

Because it generates its own operating power, the system is ideally suited for use in suburbs, rural areas, military installations, resorts, mountain areas, aboard ships, etc. Since wiring in the system is low voltage (except in forced hot water or forced warm air systems where line voltage

is needed to operate the circulator or fan motor) and since no electrical connections to the building or ship's main circuit are necessary, the advantages of economic installation and upkeep are extremely appealing. It is this economic factor that brings the self-powered gas control system into any area where domestic heaters and appliances are used.

What Does It Do?

Most of you know that a simple thermocouple (two dissimilar metals joined at one end) when heated at the tip or "hot junction" will generate a small amount of electrical energy. Fig. 1 illustrates the most common use of this principle. The current is strong enough to hold open a solenoid or diaphragm gas valve but not strong enough to open it from the closed position. Two thermocouples joined in series will double the output, and so on, using any number of thermocouples until the output attained is great enough to actuate an entire system. It is the principle of multiple, series connected thermocouples, illustrated in Fig. 2, that is the core of every self-powered gas burner control system.

The Powerpile

The multiple thermocouple assembly, referred to as a thermopile, plus the pilot burner are recognized in the gas industry as the powerpile. Add a suitable valve and a thermostat, and a system is formed as shown

in Fig. 3. To protect against overheating, add a limit control. On LPG installations add a pilot safety valve for 100% safety shutoff of main burner and pilot burner.

There are two basic powerpile designs producing voltages ranging from 350 to approximately 800 millivolts (1/3 to 4/5 volts). Because these controls operate in the millivolt range, they should never be connected to a transformer or any other power supply. The physical appearance and arrangement of the thermocouple is different in each design.

The 350-500 millivolt powerpile (Fig. 4) uses a single burner port to heat the hot junction. The 500-800 millivolt powerpile recently made available to the industry, is very radical in appearance and design. The Honeywell CS82 powerpile assembly, flat and rectangular in shape, is inserted between two flat but hollow connected ducts which are the body of the pilot burner. Multiple parts at the top edge of each duct direct the flame at both sides of the thermopile assembly—see Fig. 5. The same flame that heats the thermopile also lights the main burner. Air flows upward on both sides of the thermopile inside the ducts. Air flow is also upward on the outside of each duct. It has no primary air openings nor does it use primary air mixture. Yet, the pilot flame is always blue under varying operating pressures from 1 1/2-in. to 12-in. water column. It produces from 500 to 800 millivolts and can be

PILOT
BURNER

Fig. 1. A

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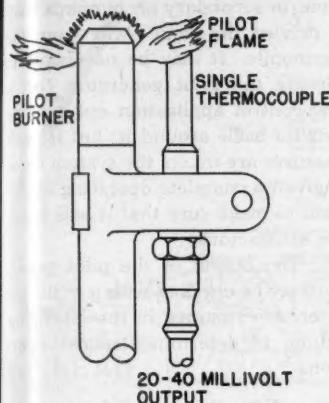


Fig. 1. A simple thermocouple when heated at the tip will generate electrical energy.

used in an upright position where most horizontal models were formerly used.

A control with these features permits the use of the same powerpile in any installation (including small appliances) where gas fired domestic burners are used.

As you've probably surmised from the preceding material, the prime functions of the powerpile are three-fold: (1) to supply the other units of the system with sufficient electrical current to operate satisfactorily; (2) to ignite the main burner under all normal operating conditions; (3) to shut off gas to the pilot burner or pilot and main burner when the pilot flame becomes inoperative.

The Gas Valve

Gas valves used in self-powered systems are designed to shut off gas to the main burner, when the thermostat is not calling for heat or when the pilot burner flame is out or becomes inadequate to light the main burner. They are also designed to permit gas to flow to the main burner when the pilot generator is operating properly and the thermostat is calling for heat. They operate on the power produced by the powerpile.

Each type of valve operates best in a special pre-determined millivoltage range and usually should not be used in other ranges. Most valves in self-powered systems are the diaphragm type employing a relay coil and armature to operate a plunger which controls the flow of gas. One design adds a permanent magnet to provide greater opening and closing power. Always consult the manufacturer for

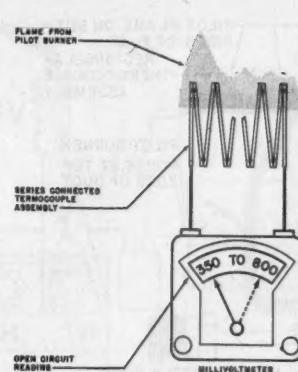


Fig. 2. The diagram above shows the principle of multiple series connected thermocouples.

proper, accepted combinations which can be used to advantage.

The Thermostat

The thermostat in self-powered systems has the same function as in any other control system. It regulates room temperature. A critical requirement, prompted by millivoltage power supply, is low resistance thermostat contacts. Mercury switch type contacts have low resistance ratings and are usually recommended although many types of open-contact thermostats are satisfactorily used.

Almost any type of thermostat that has been designed for standard gas systems has a corresponding model designed for self-powered systems. The range of temperature regulation extends from a basic, manually set thermostat to one that features completely automatic day-night control. Again, consult the manufacturer for accepted combinations.

The Pilot Safety Valve

The safety valve shuts off all gas to the main burner and pilot burner when the pilot flame goes out. It is a necessary unit in any LPG system, or wherever 100% shut-off is desired.

How Do Controls Operate?

The Powerpile

As was explained in the preceding material, the powerpile supplies millivoltage current great enough to operate a complete control system. Fig. 3 shows a typical millivoltage installation.

The powerpile has a gas supply take-off from the upstream side of the valve. When the appliance shut-off cock is opened, gas flows to the

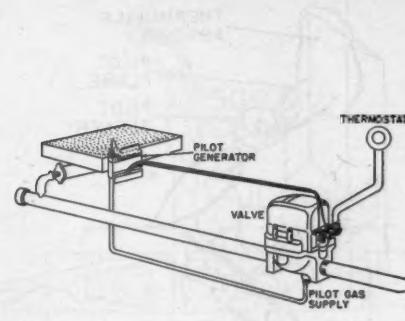


Fig. 3. The above system is formed by adding a suitable valve and a thermostat to the powerpile.

pilot burner only. As soon as the pilot is lighted, the pilot flame immediately heats the thermopile assembly generating electricity which begins to flow through the system.

The Gas Valve

As the temperature at the "hot junction" rises, the current produced becomes strong enough to energize the valve relay coil which, in turn, actuates the relay armature to open the valve.

The Thermostat

Since these systems are series connected, the circuit to the valve is not completed and therefore, the valve relay cannot become energized until the thermostat closes its contacts on a call for heat. The thermostat opens or closes the valve directly, according to the heat demand even though the powerpile current is strong enough to open the valve.

Steps To Assure the Proper System Operation

General Installation and Service Tips

Because one type of powerpile uses both primary and secondary air and a second, radically new type, uses only secondary air, they will be treated separately in the following guides.

Before each installation, check the controls used to be sure they agree with the manufacturer's recommended system combinations.

For Pilot Burner and Thermopile

(Primary and Secondary Air)

1. Location is a prime consideration. The powerpile should be mount-

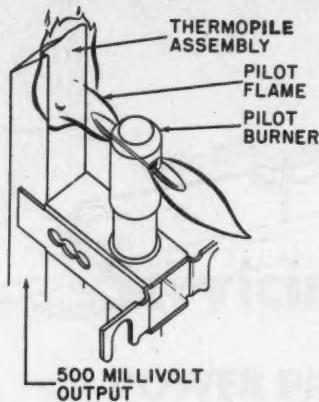


Fig. 4. The 350-500 millivolt powerpile uses a single burner port to heat the hot junction.

ed adjacent to the main burner (or between the main burners if there are two of them). The pilot flame must be close enough to the burner ports to positively ignite the burner.

2. Heat from the main burner plus the pilot burner should not exceed the "hot junction" temperature specified by the manufacturer.

3. The pilot flame must not impinge on the main burner, and only the directed flame from the pilot burner should play upon the "hot junction." In addition, the primary air ports of the powerpile (where present) should be in a zone that is relatively free from burned or unburned gases, and the leads from the thermopile must not pass over or through a section of the burner chamber where the temperature may damage the wires. Here is a "must" for every installation: *Be sure to re-install the main gas line pressure regulator if it becomes necessary to remove it when installing the gas valve or powerpile.* See Fig. 3 for typical installation.

Simple System Check

The following are general guides to live by.

After an installation has been completed, it should always be given an operating trial to make sure that all parts of the system are in good working order, and correctly adjusted.

1. Before starting the check, make sure that all gas to the main and pilot burners has been turned off long enough for complete venting of any unburned gas. Some men who have omitted this precaution have been known to live. Others have been known.

2. Before beginning at systematic operating check, examine the pilot

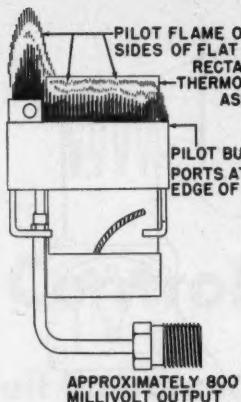


Fig. 5. Multiple parts at the top edge of each duct direct the flame at both sides of the thermopile assembly.

generator orifice to make certain that it is the correct size for the gas being used. You can usually find this information in the installation instructions supplied with the device. If not, here's a tip—an oversized orifice will cause a soft yellow flame; an undersized orifice will cause a hard flame and subnormal voltage output from the thermopile. If an undesirable orifice condition exists, don't try to get by. Obtain the necessary information and correct it.

The System Check

1. Set the thermostat indicator above room temperature to call for heat. The valve should open and the main burner should light.

2. Next set the thermostat below room temperature and the valve should close shutting off the burner.

3. If a limit control is used make sure, by setting the thermostat up and then lowering and raising the limit setting, that the limit control can break the thermostat circuit and shut down the burner.

This check is a necessary precaution to assure safety if the furnace or boiler temperature or pressure reaches an unsafe limit.

If the burner does not light off properly, the following procedure will help to find the trouble.

1. Check the control circuit wiring to make sure connections agree with the manufacturer's specifications and that tight, clean, low-resistance connections have been made throughout.

2. The pilot should be burning properly and the pilot flame making good contact with the thermopile. If the main burner lights but then goes out, a severe flame roll or ignition puff may be extinguishing the pilot

flame, or secondary air currents may be driving the flame away from the thermopile. It may be necessary to relocate the pilot generator (on a new control application only) or to install a baffle around it; but if such measures are taken, the system must be given a complete operating check again to make sure that it will function satisfactorily.

3. The output of the pilot generator may be checked with a millivoltmeter, as explained in the following section, to determine normal operation.

Effective Servicing

The most important requirement for reliable operation of the self-energizing system is a strong, clean pilot flame. It must provide clean-cut main burner ignition and sufficient heat at the "hot junction" for generating normal voltage.

Minimum resistance in all switch contacts and in all connections is the second prime requisite. If these two standards are not maintained, trouble shooting becomes a daily chore.

If a service call is necessary because of a "no heat" complaint—

1. Check the setting of the thermostat (and limit control, if used) to make sure that a low rating is not the cause of trouble.

2. Inspect the pilot flame. It should be fairly hard and large enough to ignite the main burner and to play on the thermopile of the generating unit. Make sure the primary air openings, the ports, the orifice, and the inside of the pilot tip are clean. Check the gas pressure to determine that it is within the normal operating range prescribed by the manufacturer.

3. Test the powerpile output according to manufacturer's instructions. The meter reading should agree with the manufacturer's recommendations. If the output is low, make sure (as suggested above) that the pilot flame is heating the thermopile adequately before deciding to replace the unit.

4. In the event that the trouble is not traced to low output, check the valve by alternately applying and removing a "short" on the thermostat terminals at the valve. If it operates reliably remove the jumper and try operating the valve by raising and lowering the thermostat setting. If the valve operates erratically, or not at all, "short" the thermostat termin-

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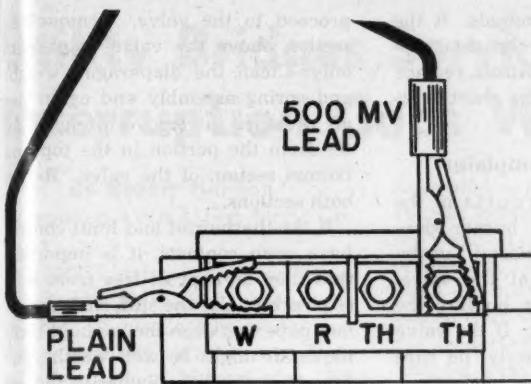


Fig. 6. Millivoltmeter connected to the outside terminals of the valve.

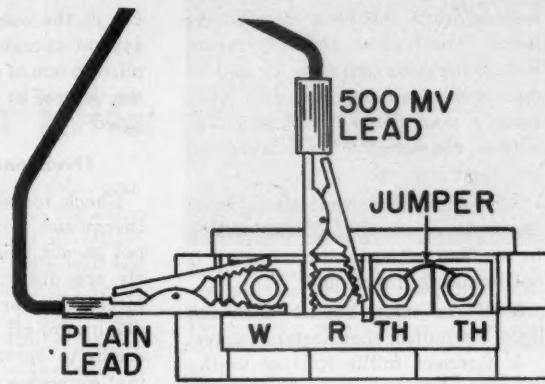


Fig. 7. Millivoltmeter connected. Jumper thermostat terminal at valve.

als at the control. If nothing happens, look for breaks in the thermostat wiring to the valve. If none are found, try a new thermostat.

5. If shorting out or replacing the thermostat does not produce reliable operation of the valve, set the thermostat to call for heat and prove the limit control by shorting at the control terminals.

6. If the limit control is not faulty (or if no limit control is used) look for an open circuit or excessive resistance in the control circuit. Make sure all connections are tight. Inspect any splices to make sure they are clean and tight, and well taped. Look for corrosion that may have occurred in a splice where acid flux was used in soldering.

Trouble Shooting (Overheating)

When you're servicing an overheating complaint, first make sure that the thermostat has not accidentally been set too high, and then that there are no short circuits in the thermostat wiring, the thermostat, and the limit control (if used) before deciding to replace the valve.

Useful Service Tips for the Honeywell Y400-CS82 Powerpile 500-800 Millivolt

Installation

(For Powerpile Using Secondary Air Only)

The latest design powerpile produces thermo-electric power and provides pilot ignition for gas burners in self-powered systems. So, it provides the same functions as other pilot generators but, with a superior sureness (because of the greater output) and extreme efficiency.

It uses secondary air only. There are no primary air openings. It is designed to burn with a blue flame in gas pressures from 1½-in. to 12-in. water column pressure. The volume of flame varies considerably between these extremes but the heating effect remains relatively constant. Fig. 5 shows the new powerpile burning with 3½-in. water column pressure drop. At this pressure it consumes only ½-ft of gas per hour.

For locating and mounting this new unit: Follow the same procedure as for the ordinary powerpile except in one instance . . . do not mount it more than 20° off vertical.

Operation of the System

The system operating check is identical to the pattern used for conventional system checks.

When Burner Fails To Respond Correctly

1. Check the control circuit to make sure connections agree with the manufacturer's recommendations. All connections should be tight, clean and low-resistant throughout the system.

2. Make sure the pilot is burning properly as in Fig. 5 with a steady blue flame. If the main burner lights momentarily but then goes out, a severe flame roll or ignition puff may be the cause. It may be necessary to relocate the unit (on new installations) or to install a baffle around it. Check the system again. If it still doesn't operate properly, *A TIMING CHECK* is in order.

- Shut off main burner.
- Connect a millivoltmeter to the outside terminals of the valve as shown in Fig. 6.

- Shut off gas to pilot burner.
- When pilot flame goes out start timing. Valve should close in 2½ minutes or less at 50 millivolts or more.

If timing exceeds 2½ minutes, be sure gas to both main burner and pilot burner is turned off. This test is not to be made with the main burner still burning.

Re-light the pilot and main burner and run through the sequence again. Note the voltmeter reading when the valve closes (needle jumps slightly). If this is below 50 millivolts, replace the valve.

Servicing the System

The 500 to 800 millivolt system, like all other self-powered systems, requires a pilot flame that lights the main burner safely and also heats the thermopile adequately for generating normal voltage.

When you begin servicing, compare the pilot flame in the system being serviced with the one shown in Fig. 5. The illustrated flame is the correct size for 3½-in. water column pressure drop. It will be smaller at lower pressures and larger at higher pressures. A yellowing at the tip over the inlet may also occur at high pressures. The most reliable standards by which to judge the flame are: (1) does it light the main burner properly, and (2) does it heat the thermopile sufficiently to generate normal voltage?

Trouble Shooting (No Heat)

- Check the appearance and volume of the flame. A poor flame may be caused by foreign matter in the orifice or faulty valves ahead of the pilot. Sometimes loose tubing or ex-

cessive drafts can be a contributing factor. Too high an air temperature around the pilot generator, caused by overrated main burners, can also cause a poor flame resulting in low output. Be sure the flame is normal and then proceed.

2. Set the thermostat above room temperature to call for heat. Check to see that an open limit control is not breaking the circuit.

3. If the main burner does not light, disconnect thermostat at valve.

4. Connect millivoltmeter to the red and white terminals as shown in Fig. 7. Jumper thermostat terminal at valve.

Check Safety Valve

On LPG applications where a pilot safety valve is used, it should hold open with a voltmeter reading of 160 millivolts or more. If the meter reads over 160 millivolts and the safety valve does not hold open, try a new one.

Disconnect wiring at the safety valve terminals on the control valve and hold open while running steps 5 and 6. Be careful not to allow the plunger to close even momentarily. If this happens, the pilot will have to be re-lighted. Voltmeter connections should remain the same as in Fig. 7.

5. Record voltmeter reading (closed circuit). Remove thermostat jumper.

6. Record meter reading (open circuit).

7. Plot the readings from steps 5 and 6 on the graph, Fig. 8.

a. If the two lines intersect in the shaded area, the pilot burner is good. Check elsewhere for cause of trouble—loose connections or splices in the system wiring could be keeping the control valve closed.

b. If the two plotted lines intersect outside of the shaded area, the thermopile section of the pilot burner is no good. Replace the thermopile unit only and run through the testing sequence again.

8. If the burner still won't light, re-connect the thermostat wires to the valve. Connect the millivoltmeter to the outside terminals of the valve as in Fig. 6. If the reading is over 135 millivolts and the valve does not open, replace it.

If all previous tests are satisfactory or if new controls have been installed as indicated, prove the thermostat and limit control by shorting them

out at the control terminals. If the system operates with the short applied to one of these controls, replace the control at which the short is located.

Overheating Complaint

Check for short circuits in the thermostat wiring. If burner does not go out when thermostat terminals are disconnected at the valve, foreign matter may be holding the diaphragm off the seat. If the valve seems to operate properly, be sure that excessive resistance in the thermostat circuit is not destroying the heat leveling quality of the thermostat. This action could result in longer "on" cycle with subsequent overheating.

Cleaning Is Important

Should it become necessary to clean the system, start at the pilot generator. Remove the orifice and pilot gas supply tube. Clean with air pressure, if possible. Replace and

proceed to the valve. Remove the section above the valve diaphragm only. Clean the diaphragm, weight and spring assembly and again use air pressure to remove foreign matter from the portion in the top and bottom section of the valve. Rejoin both sections.

If the thermostat and limit control have open contacts, it is important that they be kept as free from dust as possible. Use the stiff, smooth surface paper-between-the-contacts technique. It might be well worth your time to instruct the owner in the art of cleaning thermostat contacts.

When you are on your next installation or service call remember to:

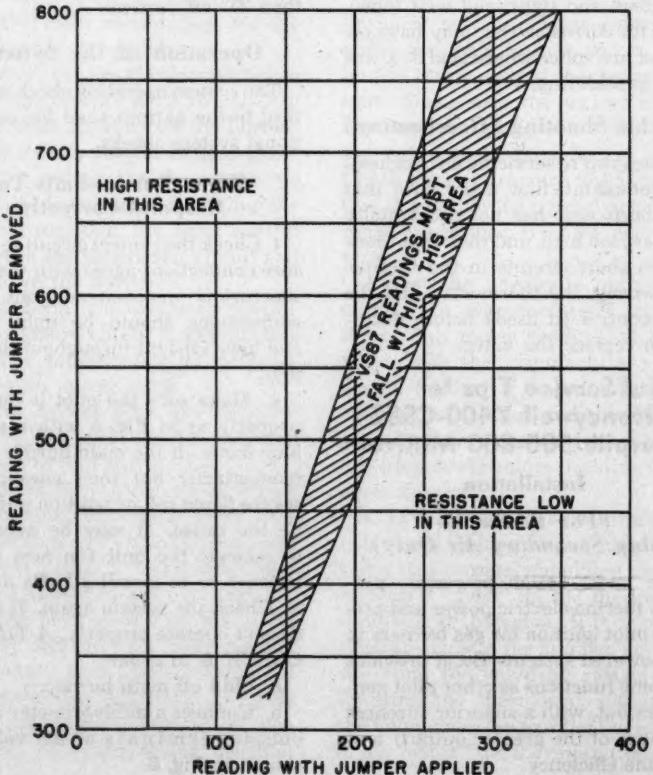
1. Make the terminal connections and splices tight so they will be low resistant.

2. Assure normal flame for sure fire main burner ignition.

Remember that your craftsmanship and courteous alertness become the handclasp of friendship between the customer and your company.

Fig. 8. After recording the voltmeter reading with both closed and open circuits, it should be plotted on this graph.

INTERNAL RESISTANCE OF THE CS82 WHEN CHECKED WITH THE VS87 GAS VALVE



Utility Bridges Service Interruption Gaps With LPG

By Robert Hannon

Milwaukee (Wis.) Gas Light Co.

WHEN natural gas was introduced into Milwaukee, there were numbers of people who questioned the advisability of changing from manufactured to natural gas. We had told our customers that it would be a great advantage to them for us to bring natural gas into Milwaukee.

Description: Set consists of a 25-lb 35-ft coil of $\frac{1}{4}$ -in. copper tubing with which extend to 12 ft in length. The Milwaukee. It was therefore a challenge to assure our customers of an uninterrupted and properly controlled supply of natural gas.

Under the new and present procedure, when customers service department locates leakage as coming from a service line, the main and service investigation department is radio dispatched immediately to investigate the leakage. In many instances, temporary repairs are made. In other cases the regular street department repair crews are notified to make repairs the same day. This close coordination and faster communications has reduced overnight service interruptions to a bare minimum.

Secondly, all cases of service pipe leakage or stoppage cannot be repaired on the same day. Standby equipment is provided for and procedures have been worked out for rendering temporary service to the customer during extended interruptions. This procedure has proved to be most satisfactory, and during the last year and one-half, none of our customers, to our knowledge, was without facilities for cooking and heating overnight.

We are able to accomplish this by having emergency equipment on hand at all times. A description of this equipment and the manner of its use is described.

L. P. Gas Sets:

Description: Set consists of a 25-lb. L. P. gas tank, pressure regulator, 35-ft. coil of $\frac{1}{4}$ -in. copper tubing with connections and one two-burner hot plate.

Application: Hot plate is installed

near window in kitchen or other convenient location. Tank and regulator are installed near window on outside of building. Tank and two-burner hot plate are connected with tubing installed over window sill. After making connections, the installer purges, tests for leaks and explains operation to the customer. A foreman follows up and inspects for safe and correct installations.

Hose Connection Sets:

Description: Sets consist of random lengths of $1\frac{1}{4}$ -in. heavy duty rubber hose with 1-in. pipe nipples in each end.

Application: The hose is installed through basement windows to connect meter installations with active service pipe in adjacent building. Sections of hose that cross driveways or walkways are barricaded and provided with lanterns. Openings between windows and frame caused by hose passing between must be ragged off tightly to prevent entry of cats, rats, birds, or other animals.

Portable Space Heater:

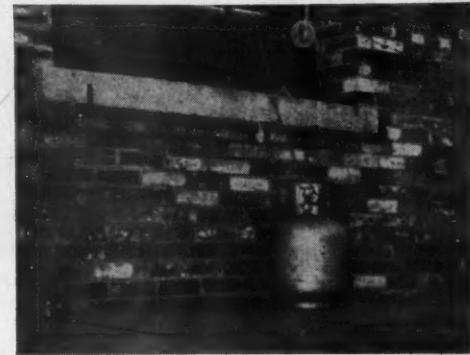
This portable heater was perfected and used by the U. S. air forces in World War II. It is easily transported from job to job. Two solid rubber tires on one end and a stand bracket at the other end make for easy handling.

Description: Model GT 3072 Herman Nelson portable heater. Heater burns range oil or kerosene. It has an output of 250,000 Btu per hour. Heat is circulated by electric, motor-driven blower. Heater is provided with two 12-in. diameter collapsible ducts which extend to 12 ft. in length. The fuel supply tank holds approximately 20 gals. and lasts for about five or six hours of continuous operation.

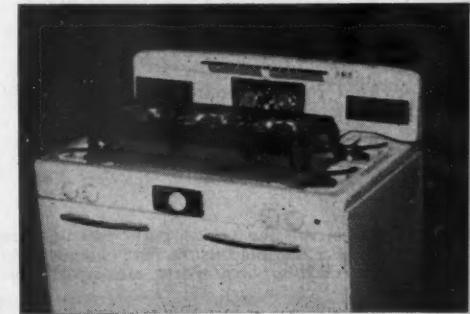
Application: Heater is used only when structure to be heated is beyond practical distance of temporary hose connection to active service or main. Heater is installed near windows outside of building. Electric cable and heat ducts are installed through window into building.

With the limited amount of equipment listed above, we have been able

Portable space heater used by the Milwaukee Gas customer service department as part of its standby equipment for rendering temporary service to customers during extended interruptions.



L. P. gas sets installed by the company make it possible for the customer to cook when service is interrupted. The tank (above) is installed outside the house and connected by the tubing to the hot plate inside (below).



to eliminate extended supply interruptions both on single services and, in many instances, main interruptions. Under no circumstances do we at the Milwaukee Gas Light Co. tolerate extended supply interruptions. Because of this attitude and the action taken to insure against service interruptions, we have improved our customer service considerably.

We recommend for your consideration a similar program in order to prove beyond a doubt to our millions of customers that gas is the most dependable fuel in use today.

Adapted from a talk given before the Wisconsin Utilities Assn.

Propane Helps Navy Base Pickling Unit Preserve Overseas Metal Gear

INSTALLATION of a pickling unit for derusting of metal gear and equipment destined for U. S. Navy overseas bases has provided a relatively inexpensive and efficient method of reclamation and preservation at the U. S. Naval Construction Battalion Center, Port Hueneme, Calif. In the operation, propane plays an important part.

Many additional years of usefulness to metal goods which are threatened by rust and corrosion at Pacific area island bases is possible following rust removal and application of preservatives at this Advanced Base Supply Depot near Oxnard, Calif.

A conservative estimate indicates that material valued in excess of \$3,000,000 was saved from disposal during the initial 18 months of operation of the pickling unit. In addition, \$414,960 in labor costs were saved during this period.

The initial receipt of Pacific Ocean area rollback material—much of it equipment from overseas bases left behind after World War II—began arriving at the Supply Depot in May,

1949, and presented the problem of proper cleaning, derusting and conditioning of many items of material. However, because of the large volume of material, the normal manual cleaning and derusting methods were very costly and ineffective, hence were immediately rejected.

After exhaustive study and research the installation of a pickling unit plant using sulphuric acid with appropriate neutralizer and passivator agents was adopted.

Unit Has Eight Tanks

The unit consists of eight tanks, seven of which were fabricated locally using two rollup pontoon cells for each, with the eighth being procured commercially. The procured tank contains a rubber membrane and acid resistant brick to hold the solution of sulphuric acid. It is installed in a pit at head of dip-tank line for safety precaution in event of leakage.

Air and gas are mixed and blown to the burner, which is a tube at the

bottom of the tank. The mixture fills the tube, forcing the sulphuric acid out. It is then ignited, and combustion takes place under the liquid, the products of combustion bubbling up through the liquid to atmosphere.

This differs from the stock tank heater, in that the latter draws air down one tube and discharges combustion products through another, and the water never comes in contact with the burner.

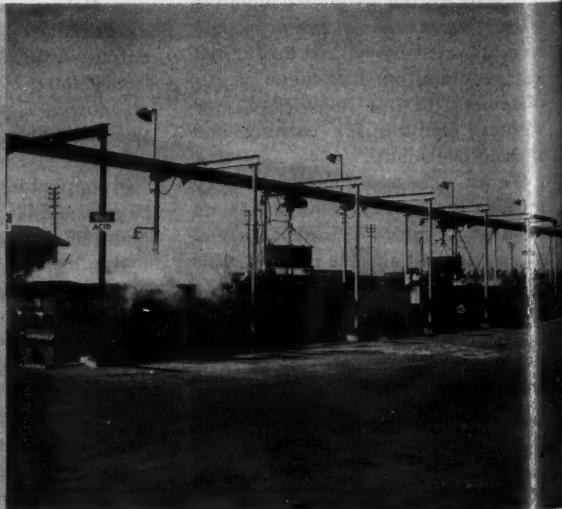
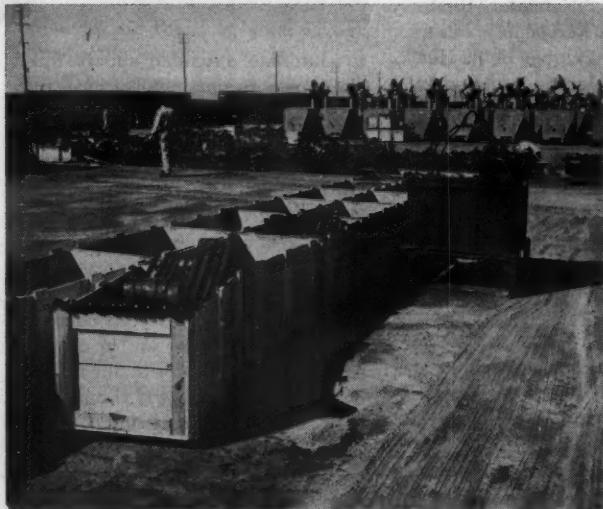
A submerged combustion burner was installed to heat the acid solution. This burner installation operates off the vapors of the propane tanks.

The capacity of the unit with proper temperature is 25 measurement tons per eight hour shift. During the period of greatest activity the pickling unit is operated around-the-clock, thereby effecting economies in man hours and fuel, normally lost during re-heating periods. Four men can efficiently operate the unit exclusive of personnel required to load and unload the dipping baskets.

Time cycle for the average article

Shown are the varied parts and equipment in consolidation and packing area at the Port Hueneme Navy base adjacent to the pickling unit. Parts are boxed for overseas shipment.

Overall view of pickling unit illustrating in-line operation and baskets in transit. Note acid tank installed in pit at head of line for safety precaution in the event of leakage.



is about 80 minutes which includes pre-soak, de-grease, paint strip, pickle tank, water rinse, neutralize, passivate and application of a rust preventative.

Process 50 Tons Daily

Under present conditions and workload the unit is operated on a 16 hour basis, processing an average of 50 measurement tons per day. There are three heated tanks, including the solution of sulphuric acid, which are heated by propane gas requiring three hundred gallons per 16 hour shift.

The sulphuric acid solution requires complete replacement, including the dumping, flushing and refilling of the tanks an average of every 80 hours of operation at a total cost of \$60; that is, \$30 for initial charging of the tank and \$30 for the continuing build-up because of draw-off, etc.

The entire unit, one of the largest installations of its type, represents an initial expenditure of about \$35,000 which was recovered in less than 30 days of operation.

Plans have been formulated and the equipment procured, to install a similar process on a greatly enlarged scale consisting of 45-ft long tanks capable of handling large material such as steel structures and shapes, even quonset hut sections, pipe, chain, pontoon assembly angles, tractor and bulldozer parts.

In addition, the new facilities will provide greatly enlarged capacities for small items such as valves utiliz-



Seven 500-gallon propane supply cylinders, with manifold connections, for derusting operation at Navy base in California.

ing the present pickling unit and result in further savings in time and money. Plans call for completion within the next few months.

Material processed at Port Hueneme is not limited to that received from overseas. Rust preservative coatings are being applied to some new equipment destined for overseas bases or storage, which is purchased by the Navy from stateside firms that lack facilities for such processing.

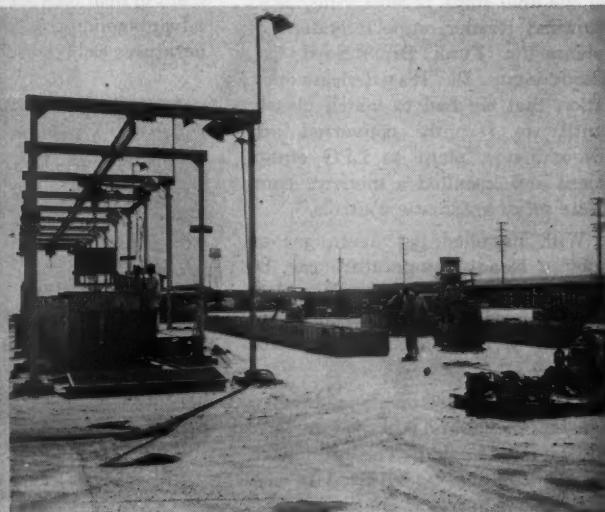
A large storage area is located on the ground adjacent to the pickling

unit where metal components and equipment are unloaded prior to processing as well as being consolidated and packaged for shipment after completion.

Inspection and testing of all parts before shipment is a vital part of the setup. Most of the small parts are packaged in large wooden boxes for shipment or storage. An overhead crane on the in-line pickling operation and fork lift trucks in the packing area facilitate production of the 50-ton daily average.

Shown below, a group of valves before and after de-rusting, test, and preservation at the Navy pickling unit, Port Hueneme.

At right, below, is discharge end of pickling unit with the consolidation and packing area to the right of the unit.



LPG Cuts Costs on Seed Drying



Howard Reeder (left), superintendent of plants for Funk Bros. Seed Co., discusses operation of giant LPG burner.

It takes years of work and experimentation to make top quality hybrid seed corn. Breeding operations, wide testing and foundation seed stocks increases, along with all the many other factors bearing on its development, take time that can't be reduced.

"So careful control of drying, one of the final steps, is most vital," says Howard Reeder, superintendent of plants for Funk Bros. Seed Co., Bloomington, Ill. "It's a delicate operation that we had to watch closely until we recently converted our Bloomington plant to LPG equipment and installed a modern, complete set of automatic controls."

With liquefied petroleum gas as fuel, a steady temperature can be maintained, even when only a low flame is needed to supply a minimum amount of heat, Mr. Reeder points out.

"We have turned the flame down to one-half inches and still the fan won't blow it out," he said. "The 8-ft. square burner can also be adjusted so that only half is in use at one time."

Construction of the diamond-shaped burner permits its operation within two feet of the blower fan. Mixture of air and heat is complete before the warm air is blown into the wind tunnel and distributed to the drying bins.

Such flexibility and fine adjustment of heat control was particularly advantageous this fall. Outside temperatures as high as 90° called for the

barest minimum of heat to maintain 110°, an efficient and safe drying temperature.

In a damp fall, LPG drying equipment has proved equally efficient to speed drying, Mr. Reeder said. It is usually better to pick corn when the moisture content is high, because mechanical pickers knock off and leave on the ground a lot of corn if the grain is too dry.

"Normally, most of our seed corn," Mr. Reeder stated, "comes in from the field around 24% moisture. This year much of it was only 15% and Funk Bros. dried it down to the usual 13%. Seed loses another 1% or more during grading operations."

Should the L. P. gas burner go out or the fan stop running, automatic controls shut off the fuel supply immediately. If air temperature should go over 115°, another set of controls automatically shut off fuel.

The Bloomington plant has two large burners feeding warm air in front of blower to fans at each end of the 150-ft. wind tunnel. One fan moves 150,000 cu. ft. per minute and the other 100,000. Total capacity of this huge plant was more than 250,000 bushels this season.

Five years ago Mr. Reeder put in his first LPG equipment as an experiment. This year, several of the company's plants have changed over and by next year it is planned to have several more using the new fuel.

Danger of spoiling years of work, when artificially drying seed corn, has practically been eliminated with the new system, Mr. Reeder believes. The combination of the even temperature possible with gas heat and the automatic controls have solved the temperature control problem.



Al Woelfle, owner of Illinois Butane Gas & Equipment Co., Bloomington, Ill., checks LPG vaporizers used in seed drying operation. LPG storage tanks appear in background.

How to Unload Tank Cars Safely



SAFETY MEETING

Date _____

Time _____

Place _____



Use this suggested program as a guide for SAFETY MEETING No 15 which appeared last month. After the meeting the SAFETY POSTER which appears on the opposite side of this page should be posted on your bulletin board as a reminder for your next meeting.

Suggested Program for Safety Meeting

- 1 — Complete the attendance record, noting the absentees.
- 2 — Unfinished business. Progress report on all safety projects which have been completed or started since the last meeting.
- 3 — New business. Time to get going on the maintenance program for the slack season.
- 4 — Discussion of "House Trailer Fires Can Be Prevented," which appeared in the March issue.
- 5 — Announce date, study assignments, and any special instructions for the next safety meeting. As you will see, this is outlined to cover the unloading of tank cars. Possibly you do not receive shipments by tank car, and this subject has no present value to your organization. Don't pass up holding your regular safety meeting on that account. We recently asked 50 industry leaders what we should do to improve our safety program. "Review the more important subjects" was the recommendation most frequently made. What does your organization need most in the way of review? Safe driving? Appliance installations? Safety inspection of customers' installations? (That's a marvelous way to find out which customers need new appliances.)

DISCUSSION GUIDE FOR 'House Trailer Fires Can Be Prevented'

This is one subject of pressing importance on which a constructive program does not yet exist. BUTANE-PROPANE News would like to formulate such a program and present it to the industry. We feel that the only way to clean up the situation is through concerted action all over the country, by the L. P. gas dealers and distributors, who must spearhead the job, and on whom the burden of keeping things policed will fall. We want your opinion and suggestions on this, and would greatly appreciate receiving a summary of the findings and recommendations at which your organization arrives as the result of this meeting.

The questions included on page 66 of the March issue form the skeleton on which we believe a corrective program can be built. We can not give you these answers, so we omit the "answers to problems" page which has been a customary feature of the safety program. We would consider it a great

favor if you will give us the answers which you find in your own local situation.

It has been noted that most distributors are inclined to avoid serving house trailer customers, for reasons outlined in the March safety article. Is this the answer? Isn't this like the fabled ostrich, which hid its head in the sand at the approach of danger? The house trailer market is not a major market at present, and may never become so. But it is the industry's biggest black eye, which apparently can only be healed up by Dr. L. P. G. Industry. And let's not forget that a great many of the people who now live in trailer homes will some day acquire permanent homes. If they distrust gas they can always get electricity, but if in their trailer experience they learn that LPG is safe and convenient, they may not be willing to use anything else. The stakes are larger than they appear on the surface. How about the answers?



WASHES CLOTHES,
...THEN DRIES THEM
WITH GAS, ALL IN
ONE AUTOMATIC
OPERATION!

AT LAST! A NEW MAJOR GAS APPLIANCE

BENDIX GAS* DUOMATIC Washer-Dryer all-in-one

This Modern and Dramatic New Gas Appliance Offers Enormous Base-Load Potential!

*Natural or LP Gas

ALREADY A SMASHING SUCCESS IN THE ELECTRIC MODEL!

Over 60,000 Bendix electric Duomatics were sold in its first year . . . giving 60,000 housewives complete freedom from the drudgery of washing and drying clothes.

But 90% of Duomatic prospects in some areas are equipped for a gas model only. As a matter of fact, we estimate that 40% of those who actually bought the electric Duomatic would have preferred gas!

The demand for gas was tremendous!

NOW BENDIX OPENS THE DOOR TO MILLIONS OF GAS DUOMATIC SALES! THINK OF THE BASE LOAD!

In a city of 100,000, 10% saturation would produce an annual new load of over 100,000,000 cu. ft.!

What's more, Duomatic owners launder often—as often as once or twice every day! This means more gas used for water-heating, too.

The Duomatic dries for them every time it washes—because it's all automatic. There's no on- or off-season—gas will do all their drying all year!

And the new Gas Duomatic has another great promise. It establishes gas as the truly modern *automatic* fuel—for what could be more dramatically automatic than a machine that washes and dries clothes all in one operation!

The Bendix Gas Duomatic Washer-Dryer will repay you lavishly for every promotion effort you invest in it.
NOW is the time to establish GAS as the fuel choice for this fabulous new appliance!

BENDIX HOME APPLIANCES
AVCO Manufacturing Corp.
Cincinnati 25, Ohio

BENDIX HOME APPLIANCES
PIONEER OF WORKLESS WASHDAY



How to Unload Tank Cars Safely

By Carl Abell



The latest Philgas tank cars have platforms built around the domes. This is not included in most other cars.

UNLOADING tank cars can become a boring job, particularly if the throughput of the plant is high and the job must be repeated frequently. The monotony factor becomes strong, and with it comes the temptation to relax in vigilance, and some individuals develop a powerful urge to depart from establishing routine so life will be more interesting. Therein lies the human hazard that goes with every repetitive job. This tendency to add variety to life by departing from fixed routine should be resisted in the tank car unloading operation, and a fixed step-by-step procedure should be established for the individual plant. This should be based on the physical equipment of the plant, and should be written up and become a part of the working manual of the plant. Many operators make it easier for the employees to follow the routine by posting the written instructions where they are easy to see but protected from the weather, generally in the pump or compressor house.

Posting these instructions has two great advantages. First, it is a constant reminder to the regular employees who handle the unloading that they should follow the established sequence of operations, and observe all standard precautions, because that is the safe way to do the job, and second, if an emergency should arise requiring an employee not ordinarily assigned to the unloading rack to take over and substitute for the regular man he can do the whole job by following the written procedure, or he can take over at any stage, determine exactly how far the job has progressed, and begin his work at the next step in the sequence. The written instructions should be care-



Paul Le May

... commandeered

There was a time when you could take care of occasional needs by using force. But an LP-Gas business today, to be successful, must make careful arrangements for current and future gas supplies at competitive prices.

The Sid Richardson Gasoline Co. helps assure the success of its customers with:

1. Segregation of tank cars to protect quality
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Plus — assured co-operation at all times because we have no company-owned wholesale or retail outlets competing with our customers for new business or for their LP-Gas supply.

Write, wire or telephone for this complete protection.

Sid Richardson
GASOLINE CO.

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Sign Color: Blue background, white lettering. Sizes shown are minimum. Sign must be made of metal.

fully prepared with this emergency use in mind, and tests should be carried out in simulated situations to see that the meaning is clear and unmistakable.

In handling loading and unloading jobs the correct routine is facilitated if the valves are painted in contrasting colors to indicate whether they are in the liquid or vapor lines. In plants having multiple tank installations, the piping as well as the valves should be painted in the appropriate color wherever it is exposed. Many operators are now using these "color-codes," particularly where several plants are owned by one company. They find that it not only promotes safe operation, but also eliminates complications and errors in performing maintenance operations.

In the actual unloading, the operations fall naturally into three groups—those performed in preparation for

the unloading, the actual unloading, those which "clean up the job" and prepare the empty car for removal. The operations and the related equipment factors will be discussed in that order.

Preparation For Unloading

The first step is always to make sure that the plant storage tank or tanks which will receive the fuel have sufficient capacity to take the load without being overfilled. While it is possible to empty a tank car in two operations, this is never desirable if it can be avoided. The ICC rules require that the hoses shall be disconnected if the tank car is left unattended, and disconnected entails the loss of fuel into the atmosphere. The frequency as well as the volume of these fuel losses should be held to the absolute minimum.

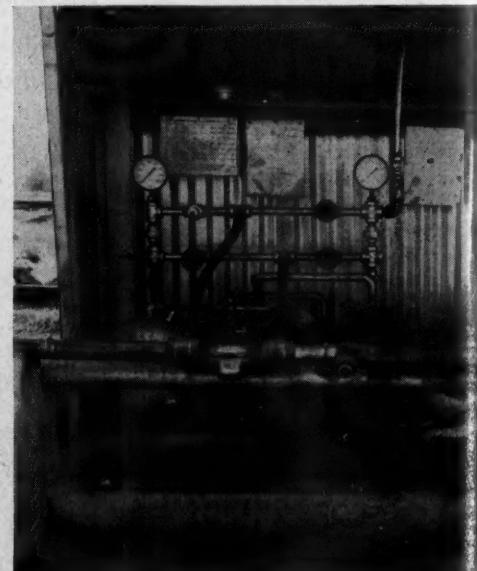
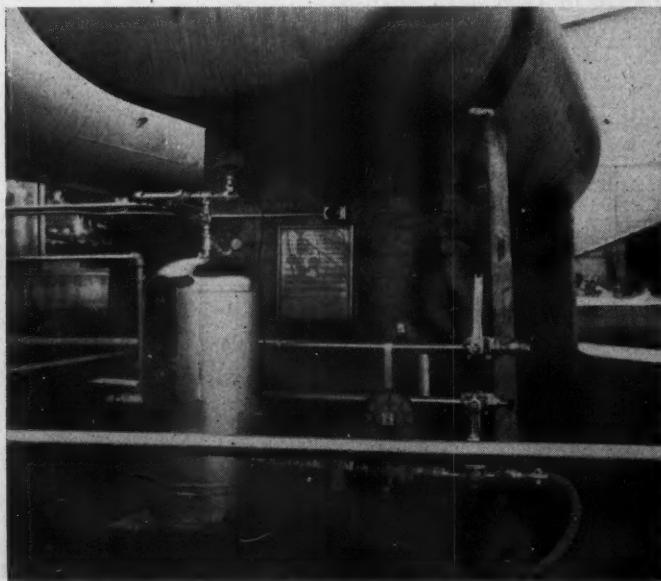
The second step is to see that the tank car is properly spotted, where the hoses can be connected without stretching or strain. The track should be level as a precaution against rolling of the car. Then to make sure the car does not move, the hand brakes should be set, and the wheels should be blocked. Not with just a piece of packing crate—do a he-man job of this, using a railroad tie or some similar formidable object at each end of the car, snug against the wheels and anchored so movement of the car will be prevented.

The tank is electrically bonded to

the car frame in a number of places, as a protection against development of static electricity and static sparks while the car is in transit. This makes it safe against static while on the main line where the rails are clean and bright. On the sidetrack the conductivity through the rails may not be so good, so it is required that the car be grounded to the track by means of a heavy copper cable bolted to the rail, and equipped with a means of attaching to the car so a good electric connection will be provided. This is ordinarily done by bolting a heavy spring grip to the free end of the cable, which is attached to one of the hold-down straps of the tank car during the unloading operation.

"STOP — TANK CAR CONNECTED" signs are required to warn train crews to keep away from the tank car during the unloading operation. One should be placed in the middle of the track in any direction from which a train might approach. These are standardized signs, with blue background and white letters, which are used universally on railroads and with which all train crews are familiar. The colors and the minimum permissible size, are specified by the Interstate Commerce Commission. The blocking of wheels and bonding of the car to the track are also covered in ICC rules.

With the above preparations completed, the yard man may go to the



Posting instructions at the point of control of transfer equipment is good safety practice—enables substitutes to take over the unloading operation at any step.

Largest Selling Brand of LP-Gas in America!



Write for additional information.



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HELP. Philgas is a famous brand name . . . the most advertised LP-Gas brand in America. Advertising is scaled to fit your needs. Practical promotional material is available to Phillips-contract customers.

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Phillips-contract customers keep up-to-date on latest improvements in equipment, newest safety measures, most efficient and economical distribution procedures, by means of Phillips bulletins and information service. Phillips also provides advice on special operating problems.

PHILLIPS PETROLEUM COMPANY

Sales Department

• Bartlesville, Oklahoma

top of the tank and get ready to connect the hoses. Steel ladders are built on the car to enable personnel to climb to the dome. These begin at about thigh height, and terminate in a small flat step on the curved side of the tank below the dome. For many of the operations it is necessary for the workman to stand on the curved top of the tank car—not particularly hazardous if the day is dry and the man wears rubber soles or heels, but decidedly hazardous when the car is wet or coated with ice, and particularly so if the hoses must be carried up on the man's shoulder. Serious consideration should be given to the erection of an unloading tower with a counterweighted walkway which tilts down from the tower to the car at the dome, and provides a level platform at the dome on which the workman may stand or squat for the operations at that point. Pipelines may be extended to the top of the tower, with valves and hose connections at the upper ends, and under most conditions the hoses may be left on the tower. The outboard ends of the hoses are suspended on the end of the tilting walkway, to make them convenient for connection, and minimize the carrying of hoses. With guardrails and cleats or friction surfaces on the walkway, the possibility of personal injuries while working at the dome are minimized. These unloading towers are available in pre-fabricated form, or blueprints of the recommended structures may be obtained from several of the leading LPG producers for the use of customers who wish to build their own towers.

While hundreds of good operators have gotten along for years without unloading towers, they are a great convenience, saving time as well as providing desirable safety features. If there is a possibility of unloading cars at night, lights should be provided on the tower, with the entire electric circuit in the vicinity of the tower and the storage area conforming with Class 1, Group D specifications. Switches for the lights, and remote control switches for the pump or compressor, should be explosion-proof or vapor-proof type. Any flashlights used in connection with this or other plant operations should also be explosion-proof.

Before opening the dome, the plant man should see that there are no automobiles, locomotives, open fires,

or other possible sources of ignition in the near vicinity, and that there is at least one large CO₂ or dry powder fire extinguisher handy.

In opening the dome, the lid should be lowered gently on its hinges—never slammed. The dome is sometimes full of fuel vapor, and a spark caused by rough handling of the dome cover might cause a flash.

The first safety precaution to be taken after opening the dome is to make a quick inspection to determine if there are any leaks in the valves or fittings inside the dome. If there are any leaks apparent, they should be located, and it should be ascertained whether they can be stopped by tightening packing glands or otherwise, without disassembling any plumbing. If a condition that can not be fixed is apparent, the bad order report, which is generally in a waterproof case inside the dome, should be filled out, and the railroad and the shipper notified. Under no circumstances should anyone attempt to disassemble any valves or fittings on a tank car full of L. P. gas.

Avoid Relief Valve

The central fitting on the tank inside the dome is the pressure relief valve. In all work at the dome the workman should be careful not to get his face or other portions of his body over this valve. The chances that it will ever pop off are remote, but if it should let go and shoot a stream of vapor on a man's body, it would be most uncomfortable, and might result in such alarm that a man could easily slip and fall off the tank.

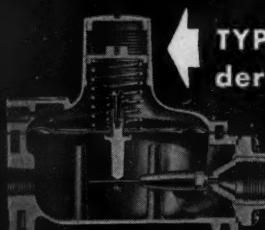
While taking the temperature reading, the tank may be gauged. The gauge tube is fitted with a brake with which it can be held in any given position. This should be used with care. The slip tube tends to shoot out of the gauge fitting due to the pressure inside the tank. The proper procedure is to stand to the side of the gauging mechanism, holding one hand around the upper portion of the slip tube, and releasing the brake gently with the other, to allow the tube to rise. The tube should be raised to the top of its travel before opening the bleeder valve. This prevents escape of liquid through the bleeder as the tube is raised and keeps fuel loss at a minimum. Bring the tube down slowly to contact the liquid level, then raise it slightly and lower again as a final check. After

the reading is taken and recorded, the bleed valve should be closed, and the tube should be lowered and locked down to prevent damage by bending, or possible breaking off of the tube if somebody gets clumsy.

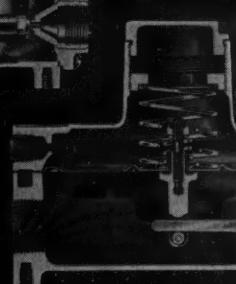
In case the gauge tube binds in its packing nut, put a little light oil on the tube and move it up and down a few inches several times. No tools should ever be used on the gauge tube, but a wrench may be used to tighten the packing nut to stop small leaks.

The valve connections inside the dome are protected by screwed-on caps. The ends of your unloading hose fittings should also be protected by caps, as the connection is made tight by means of a ground joint, and any damage causing imperfections in the ground surfaces will result in leaks. In handling the hose after removing its cap, be careful not to bang the end against any metal. The threads should also be inspected to see that they are clean and in good condition. Connections may then be screwed together and tightened with a wrench, which should be of the open-end type fitting the union nut accurately. Crescent and other adjustable wrenches should be outlawed for this operation, as they are more likely to slip and do damage than a solid wrench, and a slipping wrench used in disconnecting the joint might strike a spark and ignite fuel vapor in the dome.

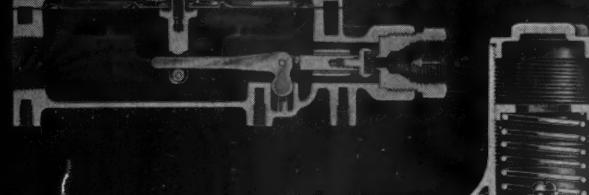
The car is equipped with two liquid education lines so it will be possible to unload the car faster. It is best to use two hoses, and connect both education valves, as almost any pump or compressor capable of unloading a tank car at an economical speed will transfer fuel so fast that if a single hose is used, the excess flow check valve under that outlet is almost certain to close. The standard excess flows operate on about a 20-lb differential, and they may also close if the tank car outlet valves are opened too quickly. The correct procedure in opening all of the valves in the dome is to crack each valve barely off its seat, and wait for the pressure to equalize to the next valve in the line to the storage tank. When the hissing sounds at the valves are no longer heard, they may be fully opened just as rapidly as possible. These valves should be fully open during the transfer, so the excess flow valves back



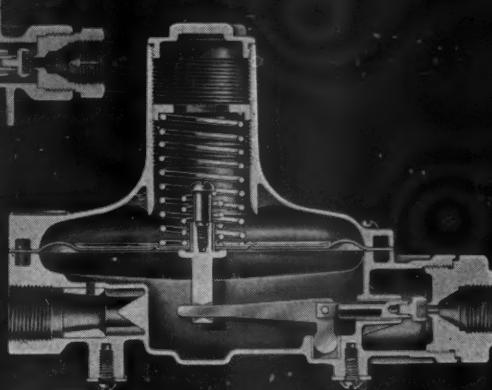
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of them will have a chance to operate in case anything happens downstream. Hoses and pipelines are not supposed to break open, but they have been known to do so on two or three occasions. The excess flow valve is there for protection against such emergencies, and conditions should always be such that it can do its job.

Excess Flow Valve Failure

In case one of these excess flow valves should close due to too great flow of fuel during the transfer, it can be opened by closing the valve in the tank dome and waiting for the pressure to equalize through the bleed hole which is provided in the valve disc for that purpose. An audible click will be heard when the valve snaps open. If the valve should fail to open, which is a rare case, it indicates that the bleeder hole is plugged up. Under no circumstances should the valve in the dome be struck with anything to try to jar the excess flow valve disc loose. A balky excess flow valve should always be noted on the bad order report, and no attempt should be made to repair it on the siding. That's a job that should only be undertaken by a competent mechanic *after the car has been emptied*. If the car can not be emptied through the normal plant equipment, this fact should be reported to the shipper.

After the valves in the tank car dome have been opened, all other valves in the lines used for the transfer should be opened in sequence, proceeding from the tank car to the storage tank. It is advisable to follow this order in cold weather as the pressure in the tank is likely to be much higher than that in the pipes. All these valves should be opened slowly at first, so equalization will take place gradually instead of coming with a violent hammering action. This procedure should be followed throughout the year so it will become habitual, and will not be overlooked at times when a high pressure differential exists between the tank and the pipe line.

The last valves to be opened will be at the storage tank. The vapor valve at that point should be opened and complete pressure equalization accomplished between the storage tank and the tank car, before opening the liquid valve at the storage tank.

Typical layout of tank car dome showing
 (A) liquid eduction valve, (B) vapor valve, (C) pressure relief valve, (D) slip tube gauge with cover removed, (E) liquid eduction valve, (F) sample valve, (G) thermometer well.



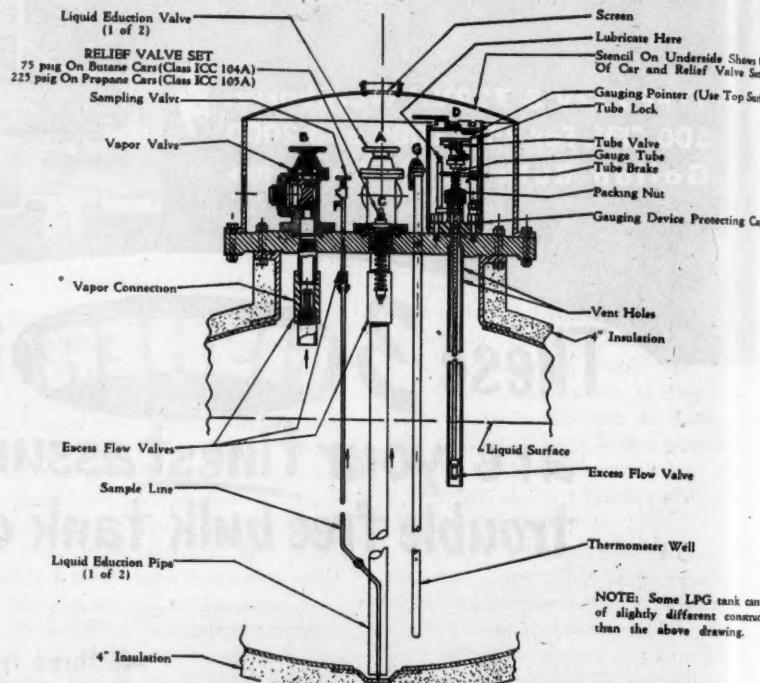
LEGEND

- A — LIQUID EDITION VALVE
- B — VAPOR VALVE
- C — RELIEF VALVE
- D — GAUGING DEVICE
- E — LIQUID EDITION VALVE
- F — SAMPLE VALVE
- G — THERMOMETER WELL

INSTRUCTIONS FOR GAUGING

Depress Tube and unlock from Hold Down Device. If equipped with Gauge Tube Brake, depress Brake to raise Tube. Loosen Packing Nut slightly. If necessary open Tube Valve sufficiently to permit slight flow of gas or liquid and adjust to liquid level. Read Gauge indicated on Tube opposite top surface of Gauging Pointer.

After Gauging replace Tube Lock and Screw protecting Cover into place



Schematic diagram of tank car dome and valves.

Remember to crack this valve just a little so the excess flow valve will not close, and wait until the hissing noise subsides before completely opening the valve. This may require as much as ten or fifteen minutes if there is a high pressure differential.

Unloading

After the vapor pressure has been equalized between the two tanks, the liquid valve may be opened and the pump or compressor started. These units should be kept ready to run,

with all mechanical inspection work and lubrication performed before the tank car is connected.

If unloading by means of a pump, go to the pump immediately after it is started, and make sure that it is running on liquid. About the worst thing that can happen to a pump is to run it with only gas in the housing. Take care of any necessary priming or by-passing quickly before the pump has a chance to heat up.

If a compressor is used as the unloading mechanism it is equally im-



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portant that it shall not be operated on liquid. A good slug of liquid is likely to burst a cylinder, besides washing the lubricant off the cylinder walls and pistons and thus inducing premature wear.

Liquid can get in the compressor as the result of condensation in long runs of pipe exposed to temperatures below the boiling point of butane. While there is very little butane in the commercial propane shipped into cold countries, it accumulates in the low spots in the line, and unless eliminated it can get into the compressor, causing damage and fire hazard due to escaping gas. A liquid trap should always be constructed in the vapor line between the compressor and the storage tank. This will be ample protection if the accumulated liquid is removed before it fills the trap. Without periodic drainage the trap might as well not be there.

The ICC regulations require that a man shall be in attendance throughout the unloading of the tank car. That is just plain common sense, although it may be somewhat boring to the man who is on the job. What is he going to do to occupy his time during the four or five hours generally required to unload a car? Obviously, it should be nothing that will divert his attention from the unloading of the fuel for very long at a time. He needs to know that the pump or compressor is running properly, and that fuel is flowing until the liquid is all removed from the tank car. There should be a sight flow indicator in the line, and he should look at it occasionally to see that liquid is flowing at approximately the capacity of the pipe.

Unloading Time

The plant man should be ready to shut down the pump or compressor and go on with the next step of the operation the moment that liquid ceases to flow when the tank car is empty. With the transfer equipment in good working condition the time required to move the liquid is pretty well standardized for that particular plant. If it requires three hours and 40 minutes to unload a tank car today, next week's tank car will unload in almost exactly the same time. Before this time is elapsed the man should be at his station waiting to do what is appropriate when the fuel stops flowing. And why leave any-

thing to chance in this timing? If the time the load starts transferring is recorded on paper—on a special delivery form, in a pocket notebook, or even on a card or scrap of paper—then the time of completion of the job calculated, there will be no slips due to not remembering, and the whole job gets on an organized basis.

After the flow through the liquid sightglass stops, the pump or compressor should be shut off, and a check made at the tank car by slowly opening the sampling valve. There may be a little liquid in the dip tube of the sampling valve after the tank car is empty, but this should be blown off in a few seconds. If liquid continues to flow, it indicates that an excess flow valve somewhere in the system has "slugged," and no further transfer can be expected until this has opened. If the flow of liquid stops abruptly it indicates that the excess flow at the eductor valve on the tank car is closed. If the liquid flow stops gradually, it shows that the excess flow valve at the vapor return outlet of the storage tank is closed.

Closure of either of the excess flow valves mentioned in the previous paragraph may happen at any time during the unloading if pressures become sufficiently unbalanced. This is one of the most important reasons why someone who understands the operation of the unloading system should be in constant attendance, and should remain within sight or hearing of the pump or compressor, and should look at the liquid flow indicator at frequent intervals. The closing of the excess flow valve at the tank car can be particularly disastrous when transferring fuel with a pump, because damaging temperatures develop very quickly if the pump runs out of liquid.

There are a few plants around the country in which fuel transfer is accomplished by pressurizing the tank car with some form of utility gas. Care should be observed to maintain this pressure within proper limits, and no gas containing sulphur impurities which might set up corrosion should ever be used in making the transfer. Corrosion will inevitably result in leaks in valves or gauging equipment, and leaks are always to be avoided if possible.

In unloading tank cars with a compressor, or with a compressor and pump, it is general practice to re-

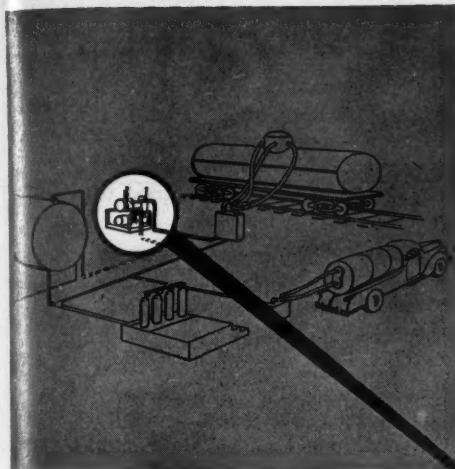
verse the manifold valves at the compressor after the liquid is removed from the tank car and all valves in the liquid line are closed. The compressor is again operated to withdraw fuel vapor from the tank car, salvaging a surprising gallonage of fuel. After the pressure in the tank has been reduced to about 15 psig, it is not economical to continue removing vapor, so the compressor should be shut down, and all valves in the vapor line closed, beginning at the storage tank and working toward the tank car. The unloading is now complete, and it is time to disconnect the tank car.

Clean Up

Bleed valves should be installed in the terminal fittings of the unloading and equalizing hoses, to let out the pressure between the hose valve and the eductor valve on the tank car. These should be used to take the pressure down to atmospheric before disconnecting the hoses. It is extremely dangerous to disconnect an Everite coupling under pressure, as this shoots the hose away from the tank valve violently, and this may strike a man, or knock him off the tank car. It is not desirable to break a threaded joint under pressure either, as the vaporizing gas may be deflected on the workman and freeze a patch of skin. At the very least, it can make the joint too cold to handle comfortably. There is also the possibility that the man may drop his wrench and strike a spark, igniting the escaped gas. It is so much simpler and better to exhaust the gas through a bleed valve, waiting a moment for it to disperse and make the area safe for work.

The protective caps and plugs should then be replaced on the valves and the hose terminals, and the hoses stored properly. A final check-up should be made to see that there are no evidences of leaks in the dome, and that the cap has been bolted down over the slip-tube gauge. The dome cover may then be carefully put back in place and secured with the steel pin.

The "flammable" cards on the tank car may now be reversed, the wheel blocks removed, the "Tank Car Connected" signs taken back into the plant, and the unloading job is done. Check to see that the hand brake is holding the car, and tell the railroad to come and get it.



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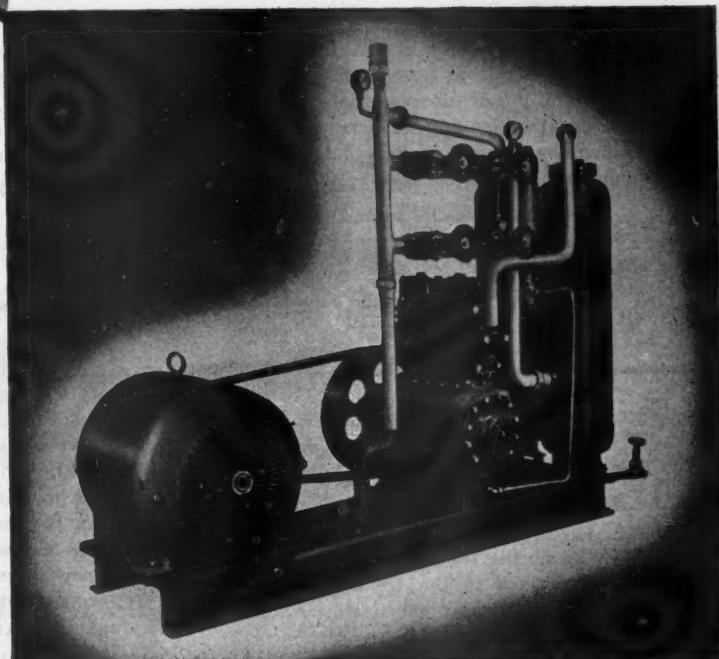
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Problems For Discussion at Sixteenth Safety Meeting

Unloading tank cars is the most nearly standardized operation in our industry. Much of the procedure is governed by regulations of the Interstate Commerce Commission, state industrial safety codes, and Pamphlet 58. These regulations aim to make safety mandatory wherever possible, but there is still room for human ingenuity to find ways of blundering into accidents. We have tried to point out some of these opportunities for disaster in the article on the preceding pages.

Safety in unloading tank cars is largely a matter of correct habits and good judgment. Judgment is based on the combination of knowledge and experience. Preferably the knowledge should precede the experience, but it is never too late to find the answers to questions. And correct working habits, even though the routine may become dull on account of repetition, are easier to acquire and maintain if the reasons for them are understood.

The equipment in the tank car dome is standardized to a very fine degree, and there is seldom any difficulty there except leakage around the packing gland of the slip-tube gauge, which can generally be overcome by simple means described in the accompanying article. The valves, piping, and equipment in the plant are not subject to the standardization that is apparent in tank car construction. It offers more scope for originality, including original mistakes.

This assignment lends itself more to questions and answers, which test memory than to problems leading to the dreariness of labor and the loneliness of thought. Nevertheless, we have introduced one problem, looking to the future solution of questions which are now under consideration, and on which the industry will be taking steps toward standardization in the foreseeable future. With enough people thinking along these lines we can expect that when the answer comes, it will be right.

The answers to the second problem will vary, depending on physical facilities at the plant which you consider. You might find two or three satisfactory answers, or in your particular set-up it might be difficult to find one solution that meets all the conditions.

And from there on through the questions, it is a matter of remembering and applying information.

QUESTIONS

1—Why should one never have his head over the slip tube gauge when working in a tank car dome?

2—Why do the regulations require that a tank car be grounded to the track while unloading, when no special precautions against static are taken when it is traveling?

3—Why are adjustable wrenches undesirable for work in the tank car dome?

4—Why are there two small outlet valves in a tank car instead of one larger one of the same total capacity?

5—How should valves be opened to prevent closure of excess flow check valves?

6—If an excess flow valve should close, how would you proceed to get it open?

7—How does a liquid trap protect a compressor?

8—How does liquid get into a vapor line? Under what temperature conditions?

9—How do you know for sure that the tank car is empty of liquid?

10—What is the purpose of the small valve that comes off the side of the terminal fitting, beyond the line valve at the tank car end of the unloading hose?

Problem 1

Suppose you are supervisor of safety for a company operating the bulk plants which receive ship-

ments of fuel by tank car. The ten plants were built by different people, and no two are alike. You wish to standardize procedure for unloading tank cars, first, so the operation will be as safe as possible, and second, so any plant man can in an emergency operate the unloading system at any other company plant at once, and without making mistakes. What steps would you take to accomplish this standardization without major rebuilding operations? Would such standardization throughout the entire industry be an advantage?

Problem 2

Your plant handles bulk and cylinder deliveries. A 10,000-gal. tank car of fuel arrives at seven o'clock this morning, and you have 24 hours to unload it before demurrage sets in. Your storage tank which holds 18,000-gal. net, already contains 14,000-gal. of fuel, and daily bulk deliveries average 2000-gal. You have 80 empty cylinders on hand, and your filling manifold operates from a separate pump. Suppose it takes six hours to unload a tank car of fuel. Set up a plan and time schedule to take care of this situation without overfilling any tanks, and without paying demurrage.

Problem 3

Give, in their proper order, the steps necessary to get a tank car of fuel prepared and connected up, ready to unload.

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Dear Mr. Denny:

• Year in and year out we sustain gas losses which according to our books run close to 10 percent. Very roughly, we distribute through bottles and tank trucks some 40 tank cars of propane per month. Our system is almost entirely a metered system. I am attempting to isolate and determine the percentage loss as nearly as possible in every phase of our handling of propane from the unloading of tank cars to storage on consumers' premises. Also, I am interested in the accuracy of meter measurement particularly under varying temperature conditions. In the latter connection, I noted with interest your answer in the March issue of BUTANE-PROPANE News to an inquiry from Wisconsin. Another trouble spot, which I suspect, concerns the accuracy of book-keeping methods with respect to gas inventories in the field.

I feel certain that your good publication has received all types of inquiries regarding gas losses sustained by distributors and that perhaps you have accumulated data which may be very helpful to me in the study which I am giving to this particular subject. I would certainly appreciate any suggestions or references which you might be able to furnish.

Thank you for your interest in my problem.

Cordially yours,
RICHMOND GRAY
Vice-President.



feature

Common

Causes

of

Gas Losses In Handling LPG

• By Lester Luxon
Technical Editor

Dear Mr. Gray:

The problem, as presented in your recent letter, is one faced by many of the dealers and distributors in our industry. The losses sustained vary widely. Many things can be done to keep losses at a minimum, but it seems improbable that discrepancies between the quantities of fuel purchased and that sold can be fully eliminated where it is handled and measured on a volume basis. The word discrepancy is used instead of loss, because it will be shown later that some so-called losses may be accounted for. True, it will be still a loss on the balance sheet, but once they are understood and determined, allowance can be made in the accounting and price structure.

Following are some items which can have an important bearing on losses in the handling of L. P. gas:

1. The quantity of fuel which arrives in the transport vessel. Be sure the amount received corresponds with the shipper's papers and invoices.

2. Unloading the shipment from the transport vessel. Transfer all of it, or as much as is economically possible, from the transport vessel into the bulk storage vessels.

3. Inventories. Make and maintain accurate inventories.

4. Leakage and all other sources of direct fuel losses, which may occur at the bulk plant, from delivery trucks, cylinder filling, customer tank filling, unaccounted deliveries, etc.

5. Losses due to metering liquid fuel to customers.

6. Losses due to metering vapor to consumers.

7. Converting weighed product to volume.

Each of the above items will now be considered in more detail.

1. A carload of L. P. gas represents several hundred dollars' investment. The purchaser should be sure that the quantity of fuel for which he is invoiced is in the

tank car or truck transport when it arrives.

Most suppliers sell L. P. gas on a gallon basis corrected to 60° F. The volume and temperature of the fuel is determined when the car is loaded, and the volume corrected to 60° F. This information and other pertinent data such as specific gravity, vapor pressure, API gravity, etc., is recorded on the shipping papers. Although the work is done carefully, mistakes are possible. Leakage or theft may occur during transit, so that less fuel will reach its destination than the shipping papers and invoice specify.

When a carload or truckload of fuel arrives it should be carefully checked before unloading starts. First, on tank cars, be sure the seal is intact and has not been broken or tampered with. If it has, contact the freight agent immediately, before anything is touched. Then, in the agent's presence, open the car and determine if the contents are intact as specified on the shipper's papers. To do this lower a good thermometer to the bottom of the thermometer well and leave it for about 10 minutes. Gauge the contents of the car carefully and determine the "outage" in inches. After the outage is determined refer to an outage table for the car in question and determine the gallons of outage. Deduct the outage gallons from the total water capacity of the car, which will be stenciled on the car. Remove the thermometer from the well and read it quickly before atmospheric temperature changes it. One or two check readings are advisable on both temperature and gauging.

Obtain the proper correction factor from the "NGA Standard Volume Correction Factors for Liquefied Petroleum Gases," table number 1, page 51, of the "Handbook Butane Propane Gases, Third Edition." The proper factor will be found opposite the observed liquid temperature in the column headed by the specific gravity shown

on the shipper's papers. Multiply the volume received at observed temperature by this factor to determine the volume received corrected to 60° F. Here is a simple calculation based on the following data:

Water capacity of the tank car	10,500 gal.
Temperature of liquid	46° F.
Outage in inches	11½
Specific gravity	.509

Please refer to Fig. 1, which shows outage tables for tank cars. Note that each table covers a range of capacities. They are not absolutely accurate but give a close approximation, satisfactory for most checking work. Accurate tables for specific cars are available. Your supplier can probably obtain them.

Water capacity of car	10,500 gal.
Outage 11½ in. (table for cars having capacity 10,251 to 10,750)	831 gal.
Net L. P. gas volume @ 46° F.	9669 gal.
Correction factor (opposite 60° F. under specific gravity .510 which is nearest .509)	1.022
Volume L. P. gas corrected to 60° F.	9883 gal.

A close check to the invoiced gallonage should result after a little practice. Extreme care must be used in gauging and temperature determination as 2° F. will produce an error of 25 to 30 gal. and 1 in. error in gauging will result in an error of 21 to 140 gal., depending on the outage. (See Fig. 1.)

If a large discrepancy is discovered notify the freight agent and your supplier before proceeding. Do not unload until a clearance is obtained from both.

Truck transports are usually calibrated to a fixed level outage. On some it must be determined by the liquid volume gauge. Be sure there is some official certified calibration used to determine the volume of the vessel.

Be certain of the delivery. Trucks are subject to the same loading inaccuracies, leakage in transit and theft conditions as tank cars.

2. Transfer all the fuel from the transport vessel that can be economically removed. A sight flow check valve in the liquid line is worthwhile to show when all the liquid is out of the transport vessel and the vapor pressure is equalized. However, removing all the liquid does not unload the car. The liquid space is now full of vapor under pressure. The quantity will vary in proportion to the pressure, and will approximate that shown on Fig. 2.

This chart has been made a little different from most vapor content charts. It requires only one simple multiplication to determine the gallons of L. P. gas (at 60° F.) left in a tank car as vapor. The chart is based on the vapor temperature corresponding with the dewpoint temperature for the pressure listed.

Removing vapor from the transport vessel requires an L. P. gas compressor. It requires power to operate the compressor, and it is not considered economical to reduce the pressure much below 25 to 40 lb in the transport vessel. For those dealers in the warmer climates the vapor problem is a greater factor than for those in cold climates.

Assume that the pressure in the tank car is 120 lb when all the liquid has been removed, and that it is economical to remove vapor until the pressure is reduced to 35 lb. The tank car capacity is 10,500 gal. At 120 lb there is the

equivalent of $10,500 \times 3.23\%$ or 339 gal. of L. P. gas in the car. At 35 lb there would be $10,500 \times 1.47\%$ or 154 gal. Gallons removed were 185.

Some suppliers, particularly when shipping in truck transports, allow a credit of 1½% of the loaded gallonage for vapor returned if the pressure in the transport is 35 lb or more when it picks up a load.

A few suppliers have scales available and sell by volume based on the weighed product. This works best where the same transport vehicle is in constant use by one receiving account. The quantity shipped is based on difference between empty and full transport tank at the time of loading.

3. A proper inventory is not as easy to take or maintain for L. P. gas as it is for other liquid fuels such as oil. The vapor must be accounted for and corrections made for the liquid temperature variations. The entire contents of the tank must be reduced to base temperatures for comparison. Sixty degrees Fahrenheit is generally accepted for these calculations.

Following is a sample determination of inventory before and after unloading a car into storage:

Specific gravity of L. P. gas—.508 (based on average of cars previously received and car unloaded this example).

Bill of lading and invoice on shipment—10,268 gal. @ 60° F.

Capacity of storage tank (water capacity)—21,684 gal.

Temperature of liquid in storage (before transfer)—30° F.

Percent of liquid in storage vessel (before transfer)—42%.

Percent of liquid in storage vessel (after transfer)—86%.

Temperature of liquid in storage vessel (after transfer)—39° F.

It is assumed that the car was checked and found to contain substantially the amount invoiced.

(a) Computation of product on hand before unloading:

$$.42 \times 21,684 \times 1.047 = 9535 \text{ gal. liquid @ 60° F.}$$

$$.58 \times 21,684 \times 66.3 \times .520 = 220 \text{ gal. liquid @ 60° F}$$

36.5 7.5 14.7 490 in tank as vapor

Total L. P. gas in storage... 9755 gal. liquid @ 60° F

Where .42 = 42% liquid

1.047 = correction factor for temperature.
(See page 57, "Handbook Butane-Propane Gases.")

.58 = 58% vapor space in storage.

36.5 cu ft of propane at 60° F and 1 atmosphere pressure to make 1 gal. @ 60° F.

(See page 22, "Handbook Butane-Propane Gases.")

.520 = absolute temperature equivalent to 60° F.

.490 = absolute temperature equivalent to 30° F.

7.5 = gal. in 1 cu ft of space.

66.3 = absolute pressure of propane @ 30° F (gage pressure + 14.7).

14.7 = atmospheric pressure = 0 pressure gage.

(b) Computation of product in storage after unloading:

$$.86 \times 21,684 \times 1.0365 = 19,329 \text{ gal. @ 60° F liquid}$$

$$\frac{.14 \times 21,684 \times 73.3 \times 520}{36.5 \quad 7.5 \quad 14.7 \quad 490} = 58 \text{ gal. @ } 60^\circ \text{ F in tanks as vapor}$$

Total L. P. gas in storage... 19,387 gal. @ 60° F

Where .86 = 86% liquid in tank.

.14 = 14% vapor space.

1.0365 = correction factor for 39° F.

73.7 = absolute pressure of propane @ 39° F.

497 = absolute temperature equivalent to 39° F.

$$19,387 - 9755 = 9632 \text{ gal. @ } 60^\circ \text{ F transferred to storage.}$$

Bill of lading..... 10,268 gal. @ 60° F.

Shortage..... 634 gal.

Part of the shortage can be accounted for in vapor returned to the tank car if no effort was made to transfer it back to storage after the liquid was removed. This would amount to approximately 215 or 220 gal. (See vapor chart attached.)

In addition, there was an additional transfer loss or discrepancy of around 415 gal. This may have been left in the car, lost or diverted during unloading operations or lost in transit if the car was not properly checked in before it was unloaded. It could also be accounted for in gaging the storage for a "one shot" check, but it should reveal itself when subsequent inventory checks are made.

4. Leakage of L. P. gas around a bulk plant or from transport equipment not only represents loss of a valuable product, but it also is a hazard to property and personnel. All leaks should be repaired and eliminated as soon as they are noted. A visual inspection of pipe, valves, fittings, etc., on a calm, sunny day will often reveal leaks that cannot be heard. Vapor drifting from a leak refracts light and the effect is clearly seen, much the same as the effect of heat is noted over a stove or a bare field on a hot day. The gas can usually be noted drifting down and away from the source of leakage. Discoloration of paint or frost also indicates leaks.

Any connections that are repeatedly made up and broken should be protected with valves on either side of the connection. The valves should be as close as possible to the union so that a minimum of liquid or vapor, as the case may be, escapes when the joint is broken.

It is also good practice to plug or cap all liquid and vapor lines which terminate to the atmosphere. This prevents leakage past the valve and also keeps foreign matter from entering the piping where it may get under valve seats, preventing their tight closure or otherwise cause trouble.

Unauthorized and unaccounted "deliveries" have also been known to account for large discrepancies.

5. A displacement meter, which is the type most commonly used by dealers and distributors, measures the volume of fluid which passes through it at the temperature and pressure of the fluid. Meters, both liquid and vapor, are calibrated for predetermined pressures and temperatures. Your meter

supplier can advise you if it is not marked on the meter. Temperature has a decided effect on liquid L. P. gas metering, but pressure does not.

The metering of fuel to customers can account for a considerable loss, particularly in the colder climates, when it is purchased at the 60° F temperature basis. For instance, assume that the fuel is metered at 30° F. The correction factor for propane at 30° F is 1.047. This means you give the customer 1.047 gal. for every gallon you buy on the 60° F basis, a loss of 4.7%. Also, if the bulk of the fuel sold this way is dispensed in the winter months, there is less chance of balancing than there is if the fuel is metered at higher temperatures. This condition is more pronounced in the colder climates.

It is of no benefit to have a meter calibrated in pounds, since the actual metering is on a volume basis with the pounds recorded by installing special gear ratios on the counter. Gears could be selected that would convert the weight to gallons at some temperature other than 60° F which would represent an average of delivered temperatures. However, such manipulation may present problems with government authorities (federal, state or local) having jurisdiction over weights and measures.

To overcome this factor determine the average temperature at which the liquid is sold during the year, with proper consideration for quantity sold during each month so that a quantity-temperature factor may be developed; then allow for it in the price structure, or work out a more equitable base temperature with your supplier.

Worn and inaccurate meters are also a source of shortages. Wear in meters often benefits the customer, and, therefore, periodic checks should be made by a person or company equipped and certified to do such work.

6. Conditions that affect the metering of liquid likewise affect the metering of vapor. In addition, there are other factors which affect the metering of vapor, such as pressure, altitude and the composition of the fuel.

Generally, the vapor passes through the meter at the pressure required by the appliances, which is about 11 in. water column. To correct for this pressure the meter

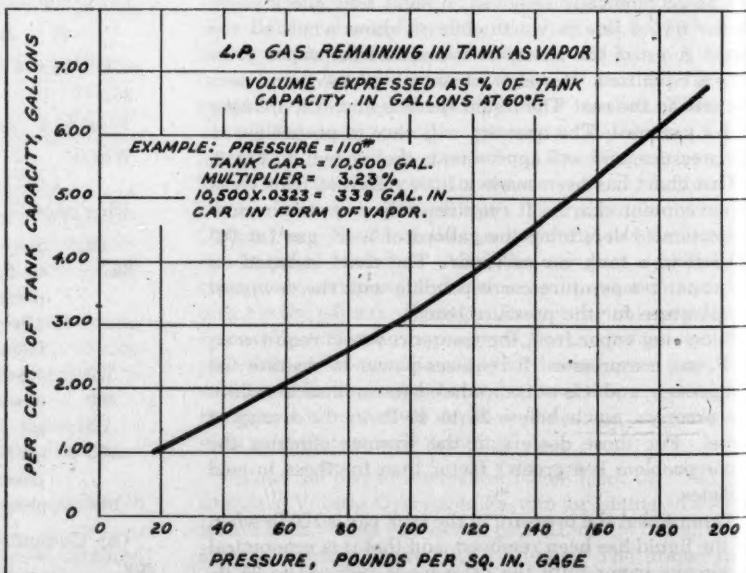
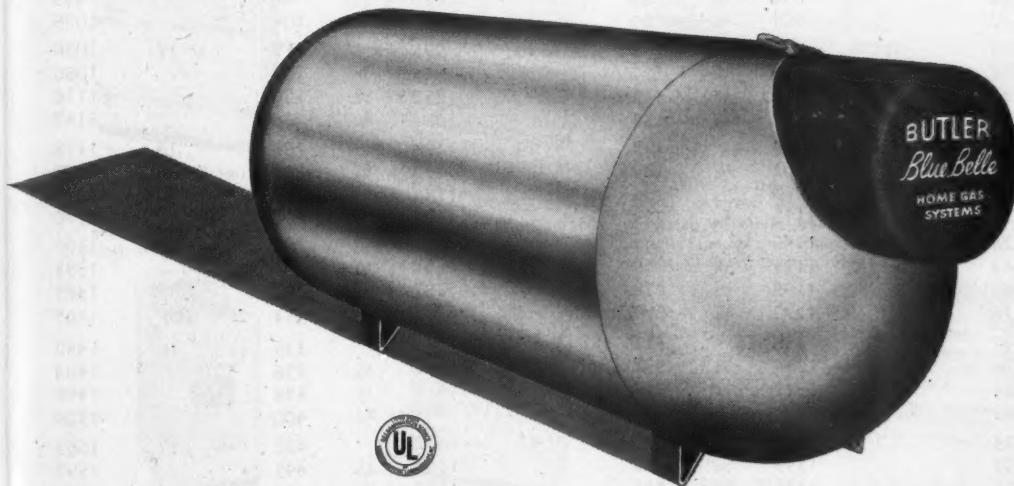


Fig. 2.

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Calculating Quantities of Liquified Petroleum Gas in Tank Cars

The table which follows—showing three groups of capacity ranges—will permit a very close approximation of quantity received for comparison with amount invoiced. (Invoice should show capacity of car, which is also stenciled on the car.)

In case of large losses actual outage will be determined from individual tables prepared for such car and govern in settlement of claims.

Capacity Range

Gallons (9751 - 10250)				Gallons (10251 - 10750)				Gallons (10751 - 11250)			
Ins.	Gals.	Ins.	Gals.	Ins.	Gals.	Ins.	Gals.	Ins.	Gals.	Ins.	Gals.
0	Full	10	632	0	Full	10	676	0	Full	10	718
1/4	3		655	1/4	3		701	1/4	3		745
1/2	7		678	1/2	8		726	1/2	8		772
3/4	13		702	3/4	14		752	3/4	14		799
1	21	11	726	1	21	11	778	1	23	11	826
1/4	29		751	1/4	30		804	1/4	32		854
1/2	37		775	1/2	40		831	1/2	42		882
3/4	47		800	3/4	50		858	3/4	53		910
2	58	12	825	2	61	12	885	2	65	12	938
1/4	69		851	1/4	73		912	1/4	77		966
1/2	80		876	1/2	85		939	1/2	90		995
3/4	92		901	3/4	99		967	3/4	104		1025
3	105	13	928	3	113	13	995	3	119	13	1056
1/4	119		954	1/4	127		1024	1/4	134		1086
1/2	133		980	1/2	142		1052	1/2	150		1116
3/4	147		1007	3/4	157		1081	3/4	166		1147
4	162	14	1034	4	173	14	1109	4	183	14	1178
1/4	178		1061	1/4	189		1138	1/4	200		1208
1/2	194		1088	1/2	206		1167	1/2	218		1239
3/4	210		1115	3/4	223		1197	3/4	236		1270
5	226	15	1143	5	241	15	1227	5	255	15	1301
1/4	243		1171	1/4	259		1257	1/4	274		1333
1/2	260		1199	1/2	278		1287	1/2	294		1365
3/4	278		1227	3/4	297		1317	3/4	314		1397
6	297	16	1256	6	317	16	1347	6	335	16	1430
1/4	315		1284	1/4	337		1378	1/4	356		1463
1/2	334		1312	1/2	357		1410	1/2	378		1496
3/4	353		1341	3/4	378		1441	3/4	400		1529
7	373	17	1370	7	398	17	1472	7	422	17	1563
1/4	393		1399	1/4	419		1504	1/4	445		1597
1/2	413		1428	1/2	441		1536	1/2	468		1630
3/4	433		1458	3/4	464		1568	3/4	491		1664
8	454	18	1488	8	486	18	1600	8	515	18	1607
1/4	476		1517	1/4	508		1632	1/4	540		1731
1/2	497		1547	1/2	531		1664	1/2	564		1765
3/4	519		1578	3/4	554		1696	3/4	588		1800
9	541	19	1608	9	577	19	1729	9	613	19	1835
1/4	563		1638	1/4	601		1763	1/4	639		1870
1/2	585		1669	1/2	626		1796	1/2	665		1905
3/4	608		1700	3/4	651		1829	3/4	691		1940

Fig. 1

reading is multiplied by the following factor: (absolute pressure at the meter + 11 in. w.c.) ÷ (absolute pressure at sea level). Absolute pressure at the meter is the barometric pressure at the meter location. It can be obtained from the table of atmospheric pressure (see Fig. 3) when the altitude at which the meter is located has been determined.

The volume of a gas varies in proportion to its abso-

lute temperature. Absolute temperature is determined by adding Fahrenheit temperatures to 460° F. Thus, 60° F is 460 + 60 or 520° F absolute. Then, to correct for temperature, multiply the quantity meter by

$$\frac{520}{460 + \text{temperature of gas}}$$

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of the lower atmospheric pressure. Likewise, gas expands into a larger volume and the meter measures it under these expanded conditions. Therefore, the volume metered must be corrected for altitude. To correct the volume registered by the meter to pressure at sea level multiply the metered volume by

atmospheric pressure at the altitude of the meter.

14.7

The composition of the L. P. gas adds another variable to the vapor meter problem. A gallon of pure propane will produce 36.45 cu ft of vapor when measured at 60° F and 14.7 lb per sq in. absolute pressure, while a gallon of normal butane produces only 31.79 cu ft of vapor. Isobutane, propylene, ethane and other hydrocarbons in the L. P. gas also affect the volume. Generally a supplier produces and ships a product of fairly consistent composition throughout the year. They can usually advise how many cubic feet of gas a gallon will produce, or they can furnish an average analysis from which the cubic feet of vapor produced by a gallon of liquid can be calculated.

All the above variables need not concern anyone unduly, because they are all fairly stable (except temperature). Once a set of average conditions are determined they can be condensed into a single factor. This factor can then be used to convert the vapor readings of the meter into gallons at 60° F by multiplying the meter reading by the factor. For example, assume the following conditions:

Elevation at meter location—1500 ft (use average of an area).

Atmospheric pressure (from table)—13.91 psi absolute.

Atmospheric pressure (standard conditions)—14.70 psi absolute.

Average temperatures—45° F.

Pressure of gas in meter—11 in. w.c.

Cu ft of gas produced per gal. liquid 60° F and 14.69 psi absolute—36.

*The average temperature should be what is termed a "loaded" average. Customers will use more fuel during certain months than during other months. In determining the average temperature for calculating this factor, multiply the average temperature for each month by the gallons sold during the month. Total the products and divide by the total gallons sold. The average temperatures by months for a number of years can usually be obtained from the nearest weather bureau.

Calculating the correction factors:

The factor for meter pressure is

$$\frac{(13.91 \times 27.7) + 11}{(13.91 \times 27.7)} = 1.029.$$

Where 13.91 is the pressure lb per sq in. absolute

11 in. is the gas pressure

27.7 is factor to convert lb pressure to inches of water pressure:

The factor for temperature is

$$\frac{520}{460 + 45^\circ} = \frac{520}{505} = 1.030.$$

The factor for elevation is 13.91 = .946.

14.7

and the factor for reducing vapor volume to gallons is 1/36 = .0278,

Atmospheric Pressures and Barometer Readings at Different Altitudes

Altitude Above Sea Level, Feet	Atmospheric Pressure, Lbs. Per Square Inch	Barometer Reading, Inches of Mercury
0	14.69	29.92
500	14.42	29.38
1000	14.16	28.86
1500	13.91	28.33
2000	13.66	27.82
2500	13.41	27.31
3000	13.16	26.81
3500	12.92	26.32
4000	12.68	25.84
4500	12.45	25.36
5000	12.22	24.89
5500	11.99	24.43
6000	11.77	23.98
6500	11.55	23.53
7000	11.33	23.09
7500	11.12	22.65
8000	10.91	22.22
8500	10.70	21.80
9000	10.50	21.38
9500	10.30	20.98
10000	10.10	20.58
10500	9.90	20.18
11000	9.71	19.75
11500	9.52	19.40
12000	9.34	19.03
12500	9.15	18.65
13000	8.97	18.29
13500	8.80	17.93
14000	8.62	17.57
14500	8.45	17.22
15000	8.28	16.38

Fig. 3

then the overall factor is $1.029 \times 1.030 \times .946 \times .0278 = .0279$.

Assume the meter records 640 cu ft in a given period of time:

$$640 \times .0279 = 17.9 \text{ gal. at } 60^\circ \text{ F and standard atmospheric pressure.}$$

Without the correction for altitude, pressure, and temperature taken into consideration, then only $640 \div 36$ or 17.8 gal. would have been invoiced, a direct loss of 1.1 gal.

Selling gas through a vapor meter provides an excellent chance to correct for some of the losses that cannot be allowed for in other methods of selling.

7. L. P. gas sold on a weight basis eliminates many of the problems which affect volume measurement. The main concern is to determine the proper weight per gallon at 60° F to convert weight to gallons, or vice versa. Chapter 3, Part 2, "Volume Correction Factors," beginning on page 50 of the "Handbook Butane-Propane Gases," deals with this subject and includes tables and illustrations to assist in determining the proper weight.

The refineries or suppliers often determine the correct weight per gallon and include it on their invoices.

A common mistake which is made when converting pounds to gallons is to use the weight per gallon for the temperature at which the L. P. gas is weighed. If it is desired to determine the volume at 60° F, then the weight per gallon at 60° F is the proper one, regardless of the actual temperature at which the fuel is weighed.

For continuous fire protection, Ansul representatives Dave Francis and Don Kunkler show Suburban Propane employees how to reload dry chemical fire extinguishers.



How Suburban Trains for Safe Operation

By Barney Freeman

SUBURBAN Propane Gas Corp., with headquarters in Whippny, N. J., holds a number of distinctions. It is not only the largest retail distributing organization in the L. P. gas business, but it is also one of the oldest and one of the safest.

There are 60 distributing plants in the Suburban system, strung out over 16 states from Maine to South Carolina. To serve their third of a million customers requires more than 1000 vehicles, and 1500 employees. Operating this far-flung organization on a safe basis is a major undertaking, and is so regarded by everyone in authority from the head office down to the smallest branch. They conduct a continuous safety training program, the object of which is to prevent accidents, fires, and explosions if possible, and to handle emergencies properly in case they should ever occur.

The safety training program is handled by a special department headed by a full-time safety director, William Bigelow, who works in close contact with L. H. McGuire, director of operations, and his assistant, D. H. Schneider. Much of the planning of the company's safety program is carried on by these three executives. Mr. Bigelow spends about 90% of his time on the road, holding safety meetings, lecturing, inspecting plants, and checking safety practices.

Most of the safety training work is carried out by the district managers, each of whom carries out safety

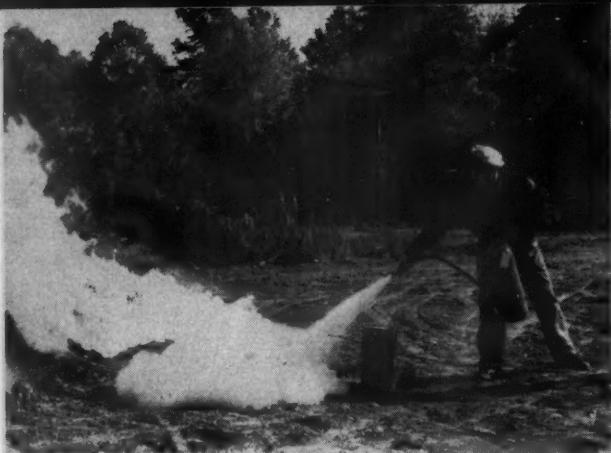
schools for all employees under his jurisdiction at least once a month. To insure 100% attendance by the staff, operations of the branch are suspended for the half day or more required to hold the meeting. Mr. McGuire estimates that the safety training program costs \$200,000 per year. This includes the procurement cost of all training material and services used in the safety meetings, the expense of the safety department, and the cost of the employee time which is "out of production" on account of attendance at the safety meetings. Mr. McGuire feels that this expense is more than returned in lowered frequency and cost of accidents, and in reduced insurance premiums. He points out, in this connection, that particularly with fires, there is a great deal lost that cannot be covered by insurance. If a plant is shut down by a fire, the physical loss may be covered by insurance, but there is no insurance against the loss of steady customers who may form the habit of buying from a competitor while the plant is shut down. Trained employees may also take jobs somewhere else while the company is getting the plant back into operation, thus necessitating the hiring and training of new employees—an expensive process.

During the half day of the safety school, various features having to do with safety are presented. Lectures and motion pictures on appropriate subjects are presented, demonstrations of fire fighting, proper procedures in transferring propane be-

tween various containers are given, and detailed study is devoted to such subjects as careful working habits, plant housecleaning, and safe driving. To stimulate safe driving, drivers compete for special safety prizes. With special attention directed constantly toward safe open operation of vehicles and protection against fire, Suburban enjoys excellent insurance rates on the company fleet of 1000 vehicles.

Realizing that employees must be constantly conscious of safety to be safe, there is continuous attention to extra-curricular safety activities. As a part of this program, at frequent intervals safety literature is mailed to the employees at their homes. Safety Director Bigelow believes that the employees absorb the material much better at home than on their jobs. As a part of this phase of the safety program, enough copies of BUTANE-PROPANE News are mailed to employees to enable all to participate in the background work necessary for the training program. Articles in the Safety Series now running in that magazine are regularly discussed at the company safety schools.

Because the possibility of fire is ever present, and because they consider that a forced shutdown on account of fire could be so harmful to business, special emphasis has been placed for years in training each employee in the prevention of fires and the use of fire fighting equipment. Their objective is to have every man so well trained, and every vehicle and plant so well equipped with fire



Wrong way (left) and right way (right) to attack a propane fire. Left, gas goes right through stream from extinguisher, operator risks burns from reflected heat. Right, stream nearly parallel to escaping gas spreads to smother flame—forms heat shield for operator.



fighting apparatus, that a fire does not have a chance to gain headway.

How to accomplish this? The answer, explains Dave Francis, representative of Ansul Chemical Co., who helps train Suburban employees in fire fighting, is "training, training, and more training."

"We want to be sure," he adds, "that if any Suburban employee has to put out a fire, it won't be the first fire he's fought."

Extra Margin of Safety

Suburban's safety program goes far beyond the minimum standards for storing and handling L. P. gas set up by insurance and governmental groups.

In the placement of fire extinguishers, for example, Interstate Commerce Commission regulations require only that an approved extinguisher be placed in the cab of a truck hauling L. P. gas. Suburban not only places a 4-lb dry chemical unit in the cab, to conform with regulations, but adds a 30-lb dry chemical unit on each side of the truck, too, for good measure.

The theory behind this, says Mr. McGuire, is that if the truck is involved in an accident affecting one side of the vehicle, the driver may not be able to reach the extinguisher on that side, but he can probably get to the equipment on the other side of the vehicle.

ICC regulations say nothing about the antiquity of fire equipment placed on trucks, yet Suburban has gone far beyond legal requirements by replacing all early model equipment with the latest Ansul B-model dry chemical fire extinguishers.

Every one of Suburban's 1000 vehicles, ranging from pick-up trucks

to tank trailers, carries dry chemical fire equipment, ranging from 4- to 30-lb. In addition, 30-lb units are spotted around the plant, at strategic points. At one large storage area in New York state, a 150-lb dry chemical unit provides the main line of fire protection.

But mere possession of fire extinguishers is not enough, Mr. McGuire contends, unless employees know how to use them. To insure their familiarity with fire equipment, Suburban has periodic field tests in which employees put out actual, live fires frequently, under the tutelage of Mr. Francis. During these courses, the employees are taught, first of all, how to protect themselves against radiant heat, by spraying dry chemical into the air in front of them, thereby creating a heat shield against the center of the blaze. Against gasoline spill fires, they are taught to attack the blaze with a rapid sweeping motion from side to side. If this is done properly, the fire does not get a chance to reflash. Against L. P. gas fires, the men are taught that it is more important to turn off the fuel supplying the fire than it is to put out the fire itself. The reason for this, it is explained, is that a more serious flash fire could occur through the re-ignition of the escaped gas. Another thing that is stressed is the need to call the fire department as quickly as possible.

Program Has Paid Off

That Suburban's safety program has paid off is shown by the company's fire record during the past six months, says Mr. McGuire. At Delmar, Md., a few months ago, the wiring on a Suburban truck caught fire, igniting oil on the motor. The driver

seized his 4-lb dry chemical unit, and knocked it out immediately.

At the company's plant at Farmingdale, N. J., fire broke out on the charging dock. Before it could spread, workers put it out with their extinguishers. On another occasion a Suburban truck driver used the company extinguisher to put out a fire in a burning passenger automobile on the open highway.

Emphasis on Inspection

In addition to the general supervision of safety training for the company, Bill Bigelow's duties include the periodic inspection of all plants and delivery vehicles operated by the company. In order to insure against oversight this inspection is made with the help of a check sheet listing 81 separate items. These cover not only the physical equipment used at the various plants, but also the operating practices. In this way it is possible to determine whether the safety training program is accomplishing the results desired, and pin-point any weaknesses which require additional attention at meetings or in private discussion with individual employees. The inspection reports are also of great value to the engineering and purchasing departments as a guide to the specification and purchasing of materials and supplies which wear out or are exhausted in service.

As the result of many years of work on a consistent safety program, the Suburban officials are convinced that their outlay in support of their safety training program cannot be rightly classed as expense. Instead, it is investment, because it returns very handsome profits in lowered costs, improved worker morale, and freedom from interruption of operations.

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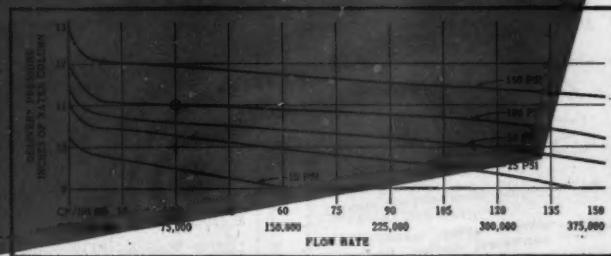
The new Series 2302 Regulator is an exclusive Rego development designed for those installations requiring unusual compactness and minimum cost. None of the important quality features found in the larger Rego Low Pressure Regulators has been sacrificed in its manufacture; like all Rego Regulators, the 2302 has the kind of construction that assures you of maximum safety and operation dependability in every application. See your distributor or write direct for full information.

2302—A COMPLETE REGULATOR LINE

- Regulator Assemblies with any standard inlet connection
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Write today for detailed 2302 literature.

REGO is the registered trade mark of Bastian-Blessing Co.



REGO 2302 PERFORMANCE CHART

The **BASTIAN-BLESSING** Company

4201 West Peterson Avenue, Chicago 30, Illinois

PIONEER AND LEADER IN THE DESIGN AND MANUFACTURE OF PRECISION EQUIPMENT FOR USING AND CONTROLLING LP GASES



Now... SEE
what it means to install
"Hidden Comfort"
WITH THE

Norman Southerner

more space for living with the most compact horizontal forced air gas furnace

Let your customers see how much valuable floor space they get when you install the compact Norman Southerner in the attic or crawl space of their home. Gives more space for closets and utility areas.

They'll *feel* better, too, with the clean warm air of this central heating system, a new kind of dependable heating comfort with no service problems after installation.

Want to make a hit with the 'gal' of the house when you remodel? Take heating out of the closets and recommend "hidden comfort" with the Norman Southerner. Sizes for all heating requirements. AGA approved for all gases.

the beauty is 'Built In'

Norman
360°

Gas fired overhead forced convection heater

new overhead heating comfort for modern commercial interiors. No hot blasts . . . no cold corners with "circular" heat distribution. Completely automatic . . . concealed controls . . . simplified venting. AGA approved. UL listed. 100,000 BTU input. Write for specifications.

Manufacturers of a complete line of gas heating and air conditioning equipment

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Pre-sold to architects and builders in national advertising

How To Make a Success As An LPG Salesman

Just a little more work will let you take home twice as much money.



By James MacKrell

WE OFTEN hear salesmen and LPG salesmen complaining about the cost of this or that and how much more profit could be made if such and such didn't cost so much.

Have you ever seriously had a heart to heart talk with yourself to see if you can afford the laziness you possess? You know the wholesale cost of gas, ranges, refrigerators, but do you know the cost of your laziness as a salesman? In every sales effort the one great obstacle to overcome is sheer laziness.

It is easy to envy those we imagine to be better off than ourselves, and we use this as an excuse for our laziness.

A few weeks ago one of our branch managers asked me to take a ride with him out in the country to see a prospect about a refrigerator. The place was a large sugar plantation. The young man who had inherited it was a likeable "good guy" type of fellow. The plantation house was a single story white frame with a wide porch all across the front, graced by large white columns. It was an old house, built over a hundred years ago when slave labor faced the beautiful porch looking out over the Mississippi. The interior had been remodeled until it looked like pages from *Better Homes and Gardens*. It

was a perfect picture of comfort, convenience, beauty and good taste.

On either side of this dream home sugar cane reached out for a thousand acres, and to the rear lay another thousand acres of rich pasture where registered Morgan horses were grazing with a great herd of Herefords.

As if this were not enough wealth, right in his back yard were three producing oil wells and also two gas wells that helped supply the nearby city with fuel.

"What do you think about all of this?" my friend asked as we started back to town.

"Well, Joe," I told him, "every salesman ought to have an oil well in his own back yard."

"Yeah," Joe said, "but let me tell you one thing: If I had an oil well in my own back yard, I'd be out at the country club on the golf course. I sure wouldn't be beating my gums trying to get my salesmen to hammer on more doors to try to sell this stuff."

Back in my room in the hotel that night I scribbled this notation on the back of an envelope:

In what sense can every LPG salesman have an oil well in his own back yard?

1. Every LPG salesman has a financial problem.

2. Every LPG salesman must start with what he has.

how

ONE SERVEL SALE

means a

Double Profit for You!

1 SERVEL, the Gas Refrigerator, is different because it's the only refrigerator that makes ice cubes without trays and puts them in a basket... all automatically! The only refrigerator with no moving parts in its freezing system... stays silent, lasts longer. Only SERVEL Gas Refrigerators offer a ten year warranty... the longest and strongest warranty you'll find. No other refrigerator in the world has these outstanding sales advantages.

2 SERVEL, the Gas Refrigerator, forges the final link for the all gas kitchen... safeguards domestic load! The amazing, profitable SERVEL is also a constant source of steady, day-in and day-out revenue throughout the year. The SERVEL Gas Refrigerator with all its outstanding features will not only maintain that gas kitchen load but will further popularize gas... the modern fuel.

no messy ice trays!



Simply pick the dry, loose, super-cold IceCircles out of the basket. The new Servel refills itself, then turns off, automatically! From automatic defrost, to separate freezer compartment, to door shelves, to the trip-saver handle, this new Servel has every deluxe feature your customers ever wanted plus the refrigeration miracle of ice "cubes" without trays—automatically!



The name to watch
for great advances in
REFRIGERATION and AIR CONDITIONING

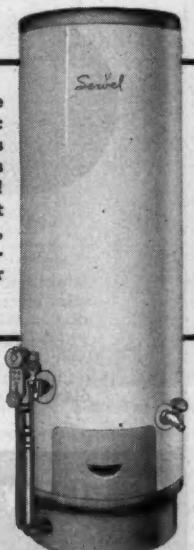
Servel, Inc., Dept. BP4, Evansville 20, Indiana

SERVEL AD DRIVE STARTS THIS MONTH!

Get complete information on how you can cash in on this great advertising and promotional drive with TV, radio, newspapers and billboards in your own local area!

SEE YOUR SERVEL DISTRIBUTOR TODAY!

A complete line
of fully automatic
gas water heaters
in a range of sizes
to fit every need!
Servel—the most
dependable,
trouble-free automatic
water heater
on the market!



Servel

In Canada: Servel (Canada) Ltd., 548 King St., W. Toronto, Canada

3. He must plan his work to see every prospect.

4. He must have faith in his company, himself and his prospects.

5. He must outsell his competition.

Every LPG salesman has a financial problem. If this were not true we would not be interested in selling. You know as well as I do that if your income were sufficient to meet all of our needs we would be off on a vacation or world tour, and working would be the least of our thoughts.

But we owe a debt to our wives and children. We owe them the necessities of life as well as some of life's comforts and conveniences. And no salesman can be at his best if he owes more than his next check will meet. I've seen many a potentially good salesman lose out right here.

Let me illustrate:

In our organization we have a good salesman whose average last year was \$5,000 a month installed, which means his average take home pay was \$500 a month. In our sales setup

we guarantee a salesman \$300 a month which is based on \$2,500 sold and installed. In my friend's case it meant that for the past year he had received a check for \$150 on the first and \$350 on the 15th.

So instead of setting his family budget on the \$300 he was guaranteed, he made the fatal mistake that many good salesmen make of spending his commission before it was earned. He found himself obligated to the tune of \$310 a month in notes above his rent and regular living expenses. An unexpected crisis hit him and before he knew how it happened he was \$310 delinquent in his personal affairs. He had over-extended his credit so he could not borrow from the bank or finance company.

Wake Up

He was so worried he could not sell and in his mental depression, he spent most of two weeks trying to borrow from personal friends.

Rather than lose this man with a good record, I went to the branch where he works and had a long heart-to-heart talk with him showing him point by point that it was his laziness he could not afford. I reminded him that it is a lot easier any day to earn, than to borrow, only to have to pay it back over a long period of time.

We agreed to apply this sales technique together:

I went over the six steps to "Analytical Selling" as set forth in Part No. 1 of this series. (See the December 1953 issue of BUTANE-PROPANE News.)

"I'll stay with you," I assured him, "until you have earned an extra \$310 this month above your regular needs."

We carefully screened his prospects, picked up a few new ones on a cold canvass and in the first three and one-half days we sold enough to meet his notes and living expenses for that month. This gave him 26 working days to earn his additional \$310. I didn't work with him for the rest of the month, but by daily applying this technique he became thoroughly awake to the dollars and cents his laziness was costing him. He ended the month with \$10,380 installed, which means he earned \$1,038 in commissions and was back on his feet in one month's time without additional debt.

This picture fits many people in



Supply your customers with FLINT LPG TANKS and watch sales increase! FLINT TANKS offer many outstanding features that make them safer; easier to handle; easier to install. FLINT TANKS are built in strict accordance with ASME code for 200/250 psi working pressure and meet all state requirements. Seven sizes from 120 to 1000 gallons. Also: 6000, 18,000 and 30,000 gallons.

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MEMPHIS, TENNESSEE
P. O. Box 3155 Phone 9-3558



**Job
after Job...**

**Year
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... Contractors choose Transite® Gas Vent Pipe

MORE CONTRACTORS than ever before are making Transite Gas Vent Pipe the Number One selection for venting domestic gas-burning appliances.

Saves Time and Money . . . This popular asbestos cement product is light in weight, permits simplified handling, speeds installation. Tough and strong, it will not deform. It cannot rust.

Widely Approved . . . Included in

the codes of hundreds of cities from coast to coast, J-M Transite Gas Vent Pipe is the *only* pipe that has been continuously listed by the Underwriters' Laboratories since 1932 for use as a vent pipe for domestic gas-burning appliances.

For further information, write to Johns-Manville, Box 60, New York 16, N. Y. In Canada, 199 Bay Street, Toronto 1, Ontario.



Transite Type B-W Gas Vent

Developed by Johns-Manville for the improved venting of recessed gas appliances, Transite Type B-W Gas Vent is an asbestos cement product, aluminum-jacketed and specially designed for simplified installation. Combines all of the advantages of Transite Type B Gas Vent Pipe.

Johns-Manville
TRANSITE GAS VENT PIPE



NEW COOL CABINET CIRCULATOR

• FIBERGLAS Insulated to minimize surface temperatures (sides, back, top) . . . delivers more heat to Living Zone.

THE RANCHERO offers 2-way delivery . . . (1) Radiant heat floorward instantly, (2) Circulated heat to living zone on warmup. Has non-clog, cast-iron Burner, set-lock Air Shutter, handy Service Door, 6 heavy duty Radiants. Rugged, rigid, well-balanced cabinet. Infrared baked enamel finish, Beige & Ivory with chrome trim. Auto-controls available. Budget priced. For all gases. A.G.A. approved.

WRITE NOW!

For Bulletin No. 630, prices, franchise details and selling helps.



a smaller or greater degree.

Regardless of the extent of your financial obligations, they are there, which may be the reason you are interested in selling as a means of earning your livelihood, so that brings us to step No. 2.

Every LPG salesman must start with what he has.

You will remember that in Part No. 1 of this series I raised this point—"only the things that belong to us can help us."

So let's stop right here and take a little mental inventory of what is already yours. How much wealth is right now in your possession?

Count Your Assets

You have good health. You can eat well, sleep well, and your eyes are good. You have a mouth to smile and talk with.

As a salesman have you ever stopped to remember how many men on this earth do not have these possessions?

You have in your possession right now products and services that your prospects can buy, own and enjoy.

You have some method of riding or walking to contact your prospects.

If you read, believe and will practice the steps given in Part No. 1, you have a story to tell and you know how to tell it.

So you are a lot better off than you thought.

THIS IS YOUR OIL WELL!

This is what belongs to you as a salesman this instant. All four of these things are yours right now, at this moment they are all in your possession. You don't have to buy them, borrow them, earn them or wait for them. They are all yours. NOW!

All you have to do is recognize them, use them and the oil will start flowing for you.

I don't care how many oil wells you might own nor how much they are capable of producing, all that black stuff is worthless until it is sold.

It's the ability to sell the oil that's important. Oil in the ground or on the ground won't buy a cabbage or a Cadillac. Anything to be valuable must be sold!

Not going to the prospect will never produce a sale. You've got to see the prospect before you can sell him and you've got to sell him before you can write the order, and the order must be in the office before you

can get the commission—don't forget that!

You have good products and services right now, BUT they will not do you any good—neither will they do your prospect any good—as long as they are in the warehouse.

Every time I see a warehouse piled high with merchandise—all of it crying to be sold—I stop and think: There it is, wrapped in its crate, not being used and enjoyed—doing nothing for anyone, making the company



Oil in the ground or on the ground isn't valuable until you sell it to someone.

no profit, the salesman no commission, giving the prospect no personal enjoyment.

But when it is sold you can stop worrying about cabbages, red beans and rice and start enjoying a good sirloin steak.

So let's decide, you and me, that we already have in your possession this moment every requisite for success as an LPG salesman—if we can only learn to overcome our procrastination and laziness.

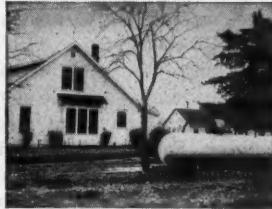
All we have to do is start using these valuable possessions. Let the oil start flowing, make the start now by using what is already ours. Go to see every prospect you have and can find.

Call it the law of averages, call it what you will, but there is nothing that will pay off more than "calling on prospects."

Recently our company decided to go after some city business. I wanted to make an accurate spot check survey in each section of one of our cities to determine how many calls would have to be made on a cold canvass basis to make a profitable operation. We hired a salesman to pick up and carry on after the survey was completed.



You'll Sell More In '54 With BS&B Propane Systems...



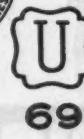
For Farm...



And Home...



And Commercial Installations...



A Word About Service

During 1953, not a single BS&B customer failed to receive delivery on his order for BS&B PERFECTION Propane Systems on schedule! Knowing that you can count on service like this to back you up means a great deal in assuring your customers of prompt delivery and installation!

BLACK, SIVALLS & BRYSON, INC.

Propane Equipment Division, Dept. 6-AB4

7500 East 12th Street

Kansas City 26, Missouri

For a three week period we canvassed house to house. The weather was hot, temperatures running from 92 to above 100 degrees. It was so hot that we were lucky to get a housewife to answer the door once out of four times. Whenever they answered I would ask, "Please, ma'm, it's so hot, may I bother you for a drink of water?"

On that day 18 gave me a drink, 15 of them went to the kitchen, returned with a glass of water and handed it to me. They would open the screen door just wide enough to

pass the glass out and immediately latch the door again. Only three of the 18 invited me into the kitchen.

But we learned some valuable statistics. It took 30 interviews to produce a single sale. Each 30 interviews also produced two good prospects we had reason to believe we would sell within the next 60 days. Three weeks of work produced \$5,967 worth of good business, at least \$11,000 worth of prospective business and a lot of valuable selling information.

Another day, while it was so hot, we went through 27 interviews that



You may enjoy being lazy but it's a high-priced form of entertainment.

were insulting. My friend wanted to quit but the 28th and 29th doors we knocked on that day gave us a good future prospect for a refrigerator and an automatic washer, while the very last call produced a cash sale of \$299.95. If we had quit when the salesman wanted to, the company would have lost its profit on a day's work, and he would have lost his day as well as \$30 commission. It was seeing everyone we were supposed to see that paid off.

During the three weeks' survey, we made one good sale every day and on several days we made two or three. Each sale averaged \$248.62.

A successful LPG salesman must have faith in his company, himself and his products.

Your success will never stop until your faith stops.

I believe that because most of the salesmen I've tried to train start out all steamed up in the morning. They are full of vim, vitamins, vigor and vinegar until they make the first sale.

Whether it's a \$300 sale or a \$500 sale it makes little difference. The salesman usually thinks, "Well, that's \$30 for today or \$50 for today. That ain't bad—let's quit."

In this business a salesman doesn't have to impress the boss for a raise. He can raise his own pay any day and every day he can raise his vision.

He can write his own pay check by the simple formula of calling on more of his neighbors.

He can drive any make or model automobile because he can earn, without any hindrance except himself, as much money as he is capable of visualizing.

He can live in any style home, in any neighborhood of his choosing, because only his own faith can hold him back or drive him on. There is

Just FUELING around

There's a Corken Good Pump

to fuel buses, tractors, taxi-cabs, trucks — anything

powered by good old LPG.

Corken pumps are quiet, economical, smooth, fast and long, long lived.

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Distributors in Principal Cities

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Pure Oil is a "heads up" company with the necessary follow-up service. This means you benefit from better planning and better control for your own operation because . . .

1 You can count on deliveries right now. Pure Oil stored away millions of gallons of propane and butane last summer to meet your needs now, and your order is shipped promptly. Tank car fleet travels in any weather.

2 You can count on each delivery being of the same high, uniform quality. For Pure Oil's LPG exceeds NGAA specifications. It prevents freeze-ups, and is free from moisture, sulfur and contaminants.

...so you can be doubly sure
when you order

The Pure Oil Company's

**Puregas**

Be sure
with Pure



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Write ads for B-P NEWS
on our ROSKOTE
FOOTRING MASTIC

*Tell how Red Primer
#4452-A inhibits rust
and about the tough
moisture barrier ROSKOTE
provides - with long life
added to LPG cylinders,
as proven by inspection of
cylinders coated 3 yrs ago.
(Don't forget to offer samples.
(We need distributors, too.)*

J.H.R.

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Box 112-B, BLAWNOX, PA.

NOW—PROMPT DELIVERY OF BURNHAM PROPANE SYSTEMS

*In Burnham
Trailers*



This quicker, more dependable delivery avoids expensive handling at destination. It eliminates the possibility of transit delays or possible damage associated with other type shipments.

The superior quality of Burnham engineered tanks plus the economy of truck deliveries direct from the factory gives you an opportunity to save that's well worth your consideration. Why not take advantage of it?

BURNHAM LPG TANKS

Available for immediate shipment — 15 sizes — either top or end mounted in capacities from 250 to 1,000 gallons.



Burnham Corporation
TANK DIVISION • IRVINGTON, NEW YORK

no limit to an LPG salesman except his own short-sightedness. Your commissions will never stop until your laziness causes you to stop and the very moment you stop your commissions stop.

A successful LPG salesman must out-sell his competition. We are not only living in a seller's market, but I have reason to believe that most of us on this earth will never again see a buyer's market. The days when people had to beg or buy on a black market a range, tank, washer or any appliance are gone forever.

Newspaper ads, TV and radio shows, magazine ads, giveaways and gimmicks are now, and have been for sometime, so commonplace that the public has become hardened and calloused to them.

This type of promotion is sort of like riding a tiger. You don't dare quit, but you're not doing much good and you know it.

There is no promotion a company can provide that can take the place of plain old-fashioned salesmanship. It's appalling to see how many good salesmen miss the boat simply because they are too lazy to GO OUT

AND SELL!

For instance, there isn't an LPG salesman in the business who is installing \$3,000 worth of equipment a month who couldn't go out and sell \$6,000—if, and here's the BIG "IF," he really wanted to. When he doesn't do it, you can truthfully say that his laziness is costing him just half of what he could be earning or about \$3,600 per year.

There isn't a salesman selling \$5,000 a month that cannot sell \$10,000 a month by working scientifically. That means his laziness is costing him over \$6,000 a year. Pretty expensive, isn't it?

That \$6,000 lost because of laziness each year means a Cadillac and a real vacation. Five years of that means he could be living in a \$30,000 house and have it free of debt. All he has to do is use his time for selling instead of loafing.

Let's summarize.

In health, products, services, and an unlimited number of prospects, you do have an oil well in your own back yard.

Let's go out and see the neighbors and start the oil flowing.



Mrs. Earl Moore (left) and her helper, Lillie Fuller, dry corn the modern way—with propane gas. Note LPG tanks at right.

LPG Boosts Ancient Cottage Industry

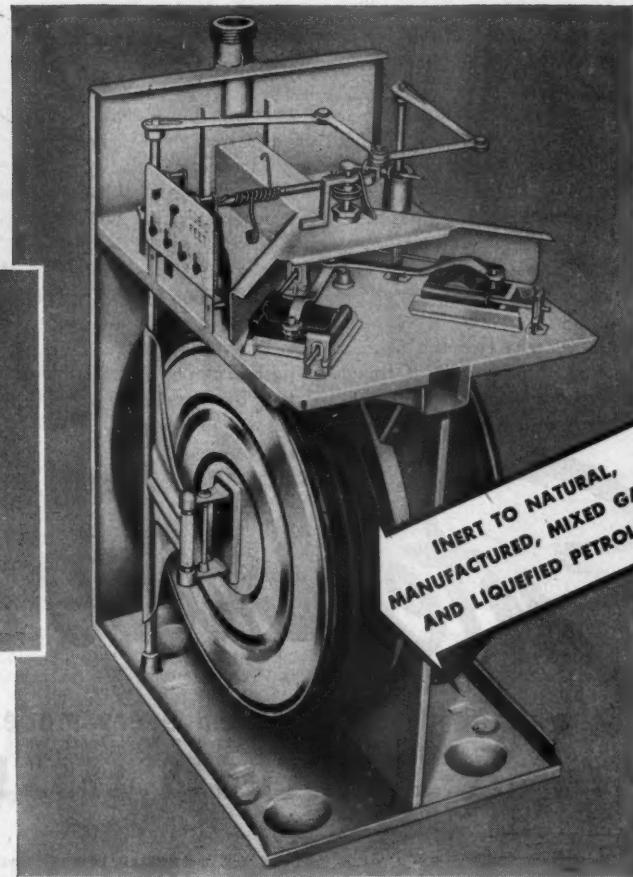
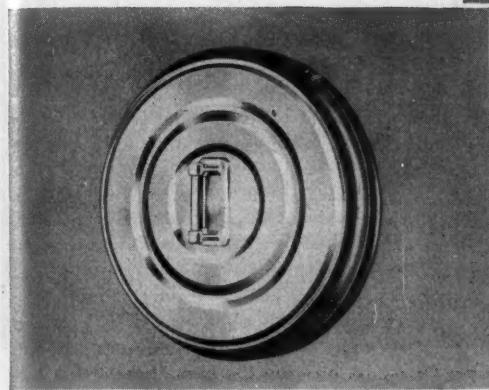
By H. H. Slawson

PROPANE gas is being used in the little community of Whittier, Iowa, to help carry on a traditional cottage industry that's as old as American agriculture.

Among today's "older generation"

a few, perhaps, still remember the home-dried sweet corn over which they smacked their lips on a cold winter day when mother brought it out from some mysterious corner of the pantry and stirred it up into a delicious dish.

It had been prepared in the previous August when sweet corn was



"DURAMIC"

DIAPHRAGMS...

... a special grade of Du Pont Fairprene®
that handles all types of gas services

The American Meter Co., Inc., manufacturers of gas meters, wanted a composition diaphragm that could be used for natural gas without drying out, cracking and eventually causing gas leakage. The diaphragm material American Meter required would have to show exceptional resistance to all types of gases. It also had to be lightweight, flexible and able to stand up for years of continuous service.

After testing many materials for this new diaphragm, they chose a grade of "Fairprene" coated fabric especially developed for them by Du Pont. They found Du Pont "Fairprene" resistant to all gases. "Fairprene" also demonstrated exceptional tear strength, burst strength and resistance to loss of coating when encountering the aromatic components in manufactured gases. The American Meter Co. obtains Du Pont "Fairprene" in sheets from which they fabricate their "Duramic" diaphragm. The exceptionally tough "Duramic" diaphragm is now used in their gas meters and is also sold by them as a replacement part.

"Fairprene" is preferred in many kinds of diaphragms

—as well as many hundreds of other industrial uses. Du Pont engineers will gladly work with you in developing special grades of "Fairprene" to meet your specific needs—to improve your present product or to help develop new ones.

DU PONT FAIRPRENE®

synthetic elastic compositions

"ENGINEERED TO DO YOUR JOB BETTER"



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

"FAIRPRENE" is Du Pont's registered trade-mark for its line of products made from synthetic elastomers available in the form of coated fabrics, sheet stocks without fabric insert and adhesives.

at its maximum goodness and you'll recall how mother, and doubtless her mother before her, got it ready for the cold days ahead.

They cut the kernels from the cob, spread them out thinly on a tray of some sort, covered this with mosquito netting and set it out to dry in the hot summer sun. Or, maybe, they relied on the big wood-burning range in the kitchen or even, perhaps, a crude home-built brick oven standing outdoors.

For years uncounted the farm women around Whittier did it this way, using the outdoor community

oven which they had chipped in to pay for and gathering around it in season to prepare their winter supplies.

In time, however, science developed dehydrated vegetables that could be bought readily in the stores and the women of Whittier began to lose interest in the homemade product.

For many years Mrs. Earl Moore of Whittier had helped her neighbors dry sweet corn in the pioneer manner. When it looked as if the practice would disappear, she acquired the drying oven and set it up in the back

yard of her village home. Concrete blocks were used to form the oven, but her biggest modification of the old-time method was to substitute propane gas for the wood formerly used as fuel.

Mr. Moore happens to be an electrician, employed in Whittier, and they have been using propane gas for 15 years for cooking. It was logical that they would explore the possibilities for using propane in the corn drying oven.

An LPG burner was installed in the oven, connected, and a dual cylinder installation was made which stands under the trees close by to supply the propane.

During the drying season Mr. and Mrs. Moore gather about seven bushels of sweet corn each evening and spread it out so the ears will not heat during the night. At 5 o'clock the next morning Mrs. Moore starts out by husking the ears, then slicing the kernels off and spreading them out on a clean cloth over a drying tray.

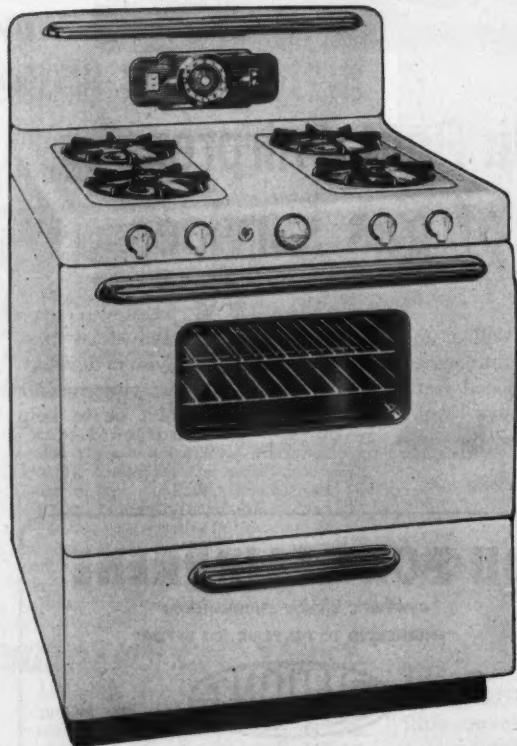
This tray consists of a wooden frame over which quarter-inch wire netting is stretched, this being used to permit free circulation of hot air through the corn. When loaded the trays are slid into the dryer where they remain about 14 hours. Then the dehydrated corn is packed into small cloth bags, ready for shipment or delivery to customers in nearby cities and towns and even as far away as California. Some of her patrons, Mrs. Moore reports, come back year after year.

"We have no way to measure the gas required for a day's run," Mrs. Moore told us. "But one tank of gas that I kept track of ran us about 78 hours. We have a pilot light on the burner and a thermostat to regulate the heat and keep it even and steady until the corn is properly dried."

Mrs. Moore sells her product for \$1.50 a pound, but she emphasizes that she continues her home dried corn business more to perpetuate a community custom than for monetary gain. She appreciates the historical nature of her operations, but feels that her method of using propane gas heat is quite an advance over the ways followed in the past.

"The propane gas," she said, "is clean and convenient and it practically eliminates the constant attention to the fuel supply which was always the hardest part of my whole corn drying process."

Why your customers will buy **Enterprise** the range that gives them every modern feature . . . **YET COSTS LESS!**



Your customers don't expect to be "amazed" by a constant flow of "revolutionary developments" in ranges. But more and more they are demanding a dollar's worth of value for every dollar they spend.

That's where Enterprise gas ranges help your volume picture. For Enterprise offers your customers every modern feature found in so-called "big name" ranges . . . **YET SELLS FOR UP TO \$75 DOLLARS LESS!**

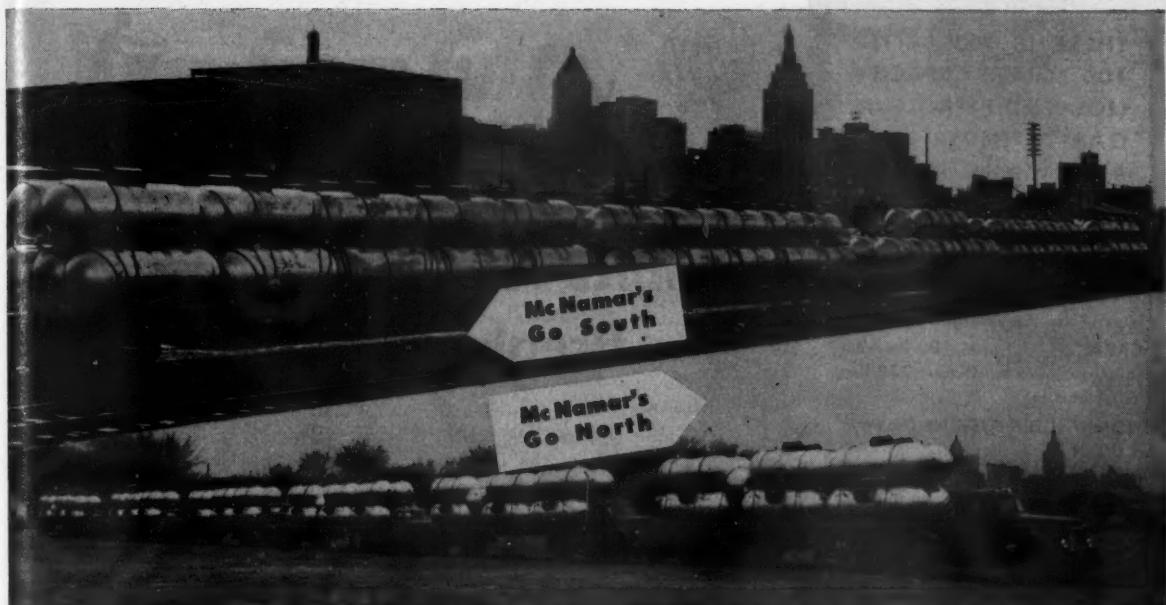
**She'll buy Enterprise . . .
the range that costs
HER less because it
costs YOU less!**



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Serving a value-conscious America for nearly 100 years

PHILLIPS & BUTTORFF MANUFACTURING COMPANY
NASHVILLE, TENNESSEE



Top picture shows five rail carloads (part of shipment) rolling south to Hydrogas Co., Quincy Florida. Purchase made by J. S. McKenzie, Hydro-

gas Co., Bainbridge, Georgia. Bottom picture shows six transport loads heading for Nebraska. Wherever you go it's McNamar.

**Whether Ordering 115 Gallon Domestic Systems
or 30,000 Gallon Storage Tanks**

**Dealers Save Money
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↑ All McNamar's are UL approved and meet rigid requirements for quality workmanship.

Call, wire or write for McNamar's laid-in price by truck or rail shipment.

When you buy McNamar's you've bought the best tanks money can buy. So make your next tanks McNamar's.

↓ PHONE 2-6293



Shipping tag on the 30,000 gallon tank reads Wisconsin.

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BOILER & TANK CO.
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**THERE IS NO BETTER
100 POUND CAPACITY
LIQUEFIED PETROLEUM
GAS CYLINDER BUILT
ANYWHERE IN THE
WORLD TODAY**

SPECIFICATIONS

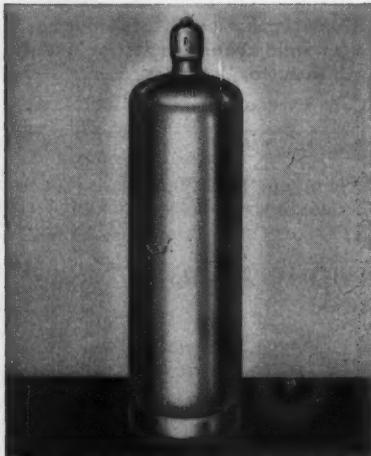
HARRISBURG Lite-Weight Cylinders
CAPACITY Propane, 100 lbs.—Butane, 121.4 lbs.—Water, 239 lbs. (28.7 gals.)

NOMINAL DIMENSIONS Diameter (I.D.), 1 1/2 inches—Height, 44 1/2 inches

WORKING PRESSURE 240 lbs. per square inch

CONSTRUCTION High tensile strength alloy steel—Tare Weight, 72 lbs.—I.C.C. 4BA-240

APPROX. UNITS PER CARLOAD
500 to 550 cylinders



with aluminum ground coat

By manufacturing concentration on the one size of LP gas cylinder that is ordered by more LP gas dealers and bulk plants than any other, **Harrisburg Steel** is able to consistently offer you a precision-manufactured cylinder that has no peer. Every **Harrisburg Lite-Weight Cylinder** that comes off our modern production lines is hydrostatically tested to 480 p.s.i.—plus our own rigid strength and uniformity tests. Result: you can depend on every **Harrisburg** cylinder you buy for unsurpassed safety, for quality, for dependable performance. Write for literature and current prices.

HSC-LP-1/54

 101 Years in Pennsylvania's Capital
Harrisburg Steel
CORPORATION HARRISBURG 4
PENNSYLVANIA



ASSOCIATION NEWS

**Exhibits At Chicago Show
Break Record This Year**

FINAL plans for the twenty-third annual convention of the Liquefied Petroleum Gas Association, May 9-12 in Chicago are rapidly being completed. A total of 218 booths—an all-time record—are under contract for a mammoth exhibit of LPG appliances and equipment, according to J. R. Herrin Jr., Coastal Butane Gas Corp., Summerville, S. C., chairman of the arrangements committee.

Dr. Bergen Evans, professor of English at Northwestern University and moderator of the popular "Down You Go" television network show, will be the featured luncheon speaker, Wednesday, May 12. Dr. Evans has earned a national reputation for his humor and misleading clues served up to a witty and erudite panel appearing on the TV show.

A keynote speaker of national prominence will open the session at

luncheon on Monday, May 10. LPGA President M. L. Trotter of Carolina Butane Gas Co., Columbia, S. C., will preside at the convention.

The trade show, held in conjunction with the convention, will cover 45,000 square feet of space in the Conrad Hilton hotel exposition hall, annex and lower lobby. Latest model ranges, water heaters, incinerators, clothes dryers, refrigerators, heating equipment, farm and carburetion equipment, transport and pickup trucks and many other items, will be displayed.

Exhibits will be open Sunday from 1 to 6 p.m., Monday from 9 a.m. to noon, Tuesday from 9 a.m. to 5 p.m. and Wednesday 9 a.m. to noon. The speaking program and exhibit time are arranged so that there will be no conflict in schedules. One member of a special committee of industry men will be in charge of the exhibit



Dorothy Dorben Dancers — favorites of other LPGA shows — are part of the sparkling entertainment to be presented at the Chicago Convention.

You Can Cut LPG Delivery Costs



Every Unit Priced Completely Equipped
and Ready to Go... Excise Tax Paid

With this

"Perfect-Balance" Nor-Tex Payloader

Built Especially for PROFIT-MINDED LP-GAS DEALERS

For value . . . the Nor-Tex Payloader "Package Unit" can't be beat! Its low delivery price includes features not found in any other combination. It's plumbed, perfectly balanced and comes complete with Recessed Fuel Tank and Viking KK 190 Pump with Mechanical Seal plus 50' Filler Hose, ICC Lights, Power Take-off with Spline Jack Shaft. The finish is Aluminum Paint over Red Oxide. Immediate delivery (completely equipped — ready to go — 1250 WG to 1800 WG) on new Reo, Ford, Chevrolet, International or GMC units.

Write, Wire or
Phone for Prices



National Sales Agents for

Balance Your
Load the
Nor-Tex Way
+
Finance the
Balance

VISIT OUR CHICAGO BOOTH 127 — CONRAD HILTON HOTEL
LPGA NATIONAL CONVENTION, MAY 9-10-11-12

Manufacturers of Fine LPG Equipment

NORTH TEXAS TANK CO.
P. O. BOX 1219

DENTON, TEXAS

CENTRAL 5416



each day. Members of the committee include E. R. Hughes, Suburban Gas Co., Montgomery, Ala.; D. C. McNall, Roney, Dallas, Tex.; G. T. Ruddy, Reeco, Limited, North Bay, Ont., Can., and Harrold J. Rust, Handley Brown Heater Co., Jackson, Mich.

Open forum discussions will be popular at the sectional meetings. Industry men attending will be encouraged to discuss their problems to seek advice and help from others in the same branch.

The marketers section will have a

series of talks including a discussion of the U. S. Department of Agriculture comparative efficiency tests, announced A. H. Cote, Suburban Propane Gas Corp., Whippoorwill, N. J., chairman of the group. Late technical developments in appliance research and other timely subjects will also be covered.

At the utilities section meeting, the question of short-term LPG customers will be covered by a trio of speakers, it was announced by P. A. Ray, Metrogas Inc., Chicago, chair-

man of the section. One marketer, a combination utility-L. P. gas service company and a straight utility company will be represented. How to give LP-Gas service to the customer waiting for natural gas service will be thoroughly discussed.

Between 40 and 50 people are expected to attend the annual breakfast for state association presidents to be held Tuesday morning. The state association presidents will also serve on a special hospitality committee for the social events on the convention program.

A cocktail party Monday evening and the annual banquet and variety show Wednesday evening are main events on the convention social calendar. In addition, special tours, luncheons and other entertainment have been arranged for wives and daughters.

Missouri Holds Management Conference

Forty-three persons attended the Management Conference held at the University of Missouri Jan. 18-20. The school was jointly sponsored by the Missouri LPGA and the University and was reported to be one of the most successful ever held.

Subjects covered included: Organizing and Financing Your Business; Sources of Funds; System and Too Much System; Are You Using Depreciation on Tax Returns; Employee Relations; Recruiting, Training and Paying; Manpower Conversions Take Slack Out of Summer Sales; Marketing the Product; Rate Comparisons: LPG vs. Competitive Fuels; Selecting the Appliance Line; Advertising and Sales Promotion; Writing Words that Sell; Special Problems of the LPG Industry; and Legal Responsibilities to My Customers and the Resulting Necessary Insurance.

Management Institute Scheduled in Texas

The fifth annual session of the Butane Management Institute will be held at the Buccaneer Hotel, Galveston, Tex., April 12-15, according to an announcement by Jack Anderson, chairman of the Industry Training Committee of the Butane Dealers Association of Texas.

Morning classes for freshman students will cover "Record-keeping for Profit" and "How to Deal With Employees." Sophomore students will attend morning classes in "How to Conduct Employee Meetings" and "Operating Cost Analysis." Third year



See You in Chicago May 9-12!

Make plans today to attend the big 1954 LPGA Convention and Trade Show at Chicago's Conrad Hilton Hotel. Record exhibit of latest LP-Gas appliances and equipment . . . open forums and speeches by national leaders on current industry problems and prospects. Plenty of entertainment . . . banquet and variety show . . . special events for the ladies. Members and non-members cordially invited.

Make room reservation with Hilton or hotel of your choice.

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Chicago 3, Illinois

FASTER MORE EFFECTIVE... MORE DEPENDABLE FIRE-STOPPING POWER

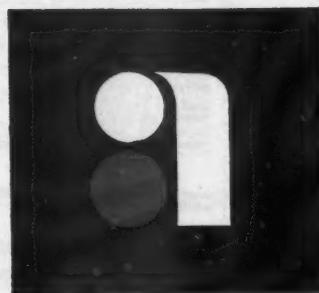


MODEL 20-B



ANSUL
Chemical Company

FIRE-EQUIPMENT-DIVISION • MARINETTE, WISCONSIN



ANSUL FIRE EXTINGUISHING EQUIPMENT

FASTER . . . A short, quick downward motion of the puncture lever pressurizes the extinguisher and it is ready for instant use.

MORE EFFECTIVE . . . Even the inexperienced operator gets near-expert results because of the ease of operation and handling. In addition ANSUL "PLUS-FIFTY" Dry Chemical has greater fire-killing power.

MORE DEPENDABLE . . . Exclusive ANSUL-ENGINEERED design features include water-tight and corrosion-resistant construction, easy, on-the-spot recharge without special tools and other exclusive Ansul developments which insure greater dependability.

FIRE-STOPPING POWER . . . ANSUL FIRE EXTINGUISHERS have the highest ratings for fire-stopping power ever awarded any type of class B and C fire extinguishing equipment.



Send for File No. B-201. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

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Sign of Courage and Initiative

Hard forward driving symbol of the ARIES sign, is typified by the Universal organization, enthusiastic in its service to customers by both producing and buying a complete range of petroleum products. Your source in our universe is UNIVERSAL.

REFINED PRODUCTS • NATURAL GASOLINE • BUTANE and PROPANE
SPECIAL NAPHTHAS • LUBE OILS and SOLVENTS

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Producers and Marketers of Petroleum Products
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juniors will study "Human Relations in Business" and "Public Speaking in Business." Senior students will attend morning classes covering "Public Speaking in Business" and "Personnel Supervision."

Afternoon sessions will be attended by all students and will cover "Demonstrations in Selling," "Legal Aids for Butane Dealers" and "Problem-solving Workshop."

Eastern Canadian LPG Holds Annual Convention

The Sheraton-Mt. Royal Hotel in Montreal was the scene of the recent annual two day meeting of the LPGA's eastern Canadian district. Despite transportation problems caused by Canada's blustery winter, attendance at the meeting was one of the highest in the district's history.

Following introductory remarks by John F. McQueen, chairman of the convention, Mel J. Trotter, president of LPGA, Chicago, told convention delegates about the functions of the LPGA and congratulated them on the establishment of their own district office.

The two day convention also included such speakers as A. C. Kreutzer, also of LPGA, Chicago, speaking on the association's legislative problems; Frank Harrison of Marsh & McLennan Inc., talking about propane as an insurance risk; and Gordon A. Purdy of Imperial Oil Ltd., speaking on the sources and characteristics of L. P. gas.

Other subjects covered in talks were selling, carburetion, and prospects for the industry in 1954.

A new promotional campaign throughout the industry's marketing areas in eastern Canada will probably be one of the early results of the discussions at the convention.

Service School Set For Iowa State College

The fourth midwest L. P. gas service school at Iowa State College is scheduled for April 21-23. It is jointly sponsored by the Liquefied Petroleum Gas Association and Iowa State College.

Included in the course will be the following subjects: Properties and Characteristics of LPG; Discussion of Competitive Fuels; Venting of Gas Appliances; What the Service Man Should Know about Bulk and Bottle Gas Installations; Installation and Servicing of Ranges; What the Service Man Should Know about Regulators; Pipe Sizing; Operations and Adjustments of Thermostats; Installation and Servicing of Water Heaters; Installation and Servicing of Stock Tank Heaters; Burner Adjustments; and Customer Relations.

Further details may be obtained by writing: D. C. Faber, Engineering Extension Service, Iowa State College, Ames, Iowa.

Northwest Convention Meets in Spokane

The Davenport hotel in Spokane, Wash., will be the scene of the LPGA northwest district convention to be held on April 2 and 3.

J. C. Yeomans will be presiding over the two day convention, which will include a variety of speakers, luncheons, a cocktail party, and a banquet dance in the evening.

Some of the guest speakers will include M. A. Ennis, west coast LPGA secretary; Howard D. White, vice president of LPGA, Chicago; Lt. Governor Emmett Anderson; W. R. Sidenvaden, president of Suburban Gas Service Inc., and Spencer H. Nitchie, vice president of Butane Corp., Phoenix, Ariz.



Delegates to the Eastern Canadian district's annual convention enjoy themselves at the convention's cocktail party. From left to right: W. T. Edmeds of Superior Propane Ltd., J. M. Taylor of Sumner Propane Ltd., A. Fallow of John Inglis Co., Ltd., A. G. Copp of Blu-Flame Gas Co., and H. Wren of John Inglis Co., Ltd.

New!



Gas Fired

WALL HEATER

with EXCLUSIVE furnace-type BLOWER

PERFECT FOR SMALL HOMES, APARTMENTS, MOTELS, CAMPS . . .

FURNACE-TYPE HEATING at $\frac{1}{4}$ USUAL COST

Sells on sight! This Royal Recessed Wall Heater gives forced-air, central-type heat—thermostatically-controlled (optional)—yet costs your customers only $\frac{1}{4}$ what they'd pay for an ordinary furnace. Check the powerful selling points below, then call your wholesaler for complete details and specifications.

PACKAGE BLOWER UNIT Snaps INTO ROYAL WALL HEATER

So easy to install that
a woman can do it!



MODEL 5335-B
(with blower)

(with blower)

New Royal Furnace-type Blower installs in seconds. Just remove lower panel, snap blower into place, plug into a 110 AC outlet, and it's ready to operate automatically. Controlled by thermostat, blower operates ONLY when heater has warmed up—won't circulate cold air. Three-way control switch allows continuous operation, automatic operation as heat control, or complete shut-off. Blower can be removed from heater and used to circulate air in summer.

ROYAL SPACE HEATER... BIG LINE- BIG VALUE!

A complete easy-to-sell line of vented and unvented gas heaters, to meet every need, suit every purse. You'll enjoy the easy installation and the way Royal Space Heaters build your reputation by giving dependable, economical service to your customers. Royal Circulating and Radiant Heaters all utilize the famous Royal Lifetime Burner. They're designed to beautify any room, to throw out plenty of clean heat—and priced to SELL!

All Royal Gas Heaters fully approved by American Gas Ass'n.



Model 2960

CHATTANOOGA ROYAL COMPANY
CHATTANOOGA 6, TENNESSEE



Advertised in LIVING
for Young Homemakers

ROYAL

Pennsylvania

John V. Grimaldi, assistant manager of the accident prevention department of the Association of Casualty and Surety Companies, was the guest speaker at the western district meeting of the Pennsylvania LPGA held in Greensburg recently. It was one of the largest district meetings ever held in Pennsylvania.

William Cutten, of Cutten Gas Co., Wyoming, Pa., reported on a Welfare Group Insurance Program his committee has been working on for the past year. The program will make it

possible for any L. P. gas dealer, large or small, to offer his employees life, health and accident insurance at a cost which was available only to the largest employers. This will be the first group insurance program of this type to be instituted in the country and it will be watched with interest by many other states.

Frank Thompson of Carlisle Propane Co., Carlisle, Pa., reported for the activity committee and suggested the annual convention be held at the Penn Harris Hotel in Harrisburg September 10th.

Three additional district meetings

in conjunction with state board meetings for the balance of the year will be held as follows: March 22, Reading; May 24, Lewistown; July 26, Wilkesbarre.

The educational committee of which W. C. Bathurst of the Bathurst Gas & Electric Co., Lock Haven, Pa., is chairman recommended to the board a series of educational projects for the year. First, a series of workshops across the state to set the stage for the state regulatory inspection program to go into effect early in 1954.

Secondly, a management conference for "top" dealer personnel is scheduled to be held sometime in June at a resort hotel in the Poconos.

Thirdly, a four-day service school will be held at Pennsylvania State University the latter part of the summer. The recommendations were all approved and the committee was instructed to proceed with the program.

H. Calvin Goss of Goss Gas Inc., Glenshaw, Pa., chairman of the membership committee, outlined a very intensive membership campaign being launched that day in Pennsylvania with the idea of increasing the membership substantially. Pennsylvania is first nationally for membership and they are determined to keep that position.

The legislative committee has been very active reported the chairman, J. E. Shaffer of Atlantic States Gas Co., Burnham, Pa. The new Pennsylvania Regulatory Law has been carefully checked by the committee and all additions noted so that it conforms with the latest editions of Pamphlet 58. The committee is working very closely with the Department of Labor and Industry and hope to get the new regulations early in 1954.

William H. Plank, district secretary, reported the district office was being moved to 2119 North Second Street, Harrisburg.

Colorado and New Mexico Adopt Group Insurance Plan

The officers of the Colorado and New Mexico LPG Associations recently voted to adopt a broad-coverage, low-cost group insurance plan for member employees and their families. The insurance program will be underwritten by the North American Accident Insurance Co. and will be available to all members in the two states.

The plan is voluntary and offers full coverage where compensation is not carried or needed. The new plan also fits into other existing insurance coverage such as Blue Cross, Blue Shield and other group plans.

You can pay for this

BRUNNER LP GAS TRANSFER UNIT



BRUNNER LPG UNITS are available in 5, 7½ and 10 H.P. models — easy to install, easy to service.

— with the
GALLONAGE SAVINGS
you'll get
every time you
empty a tank car!

Yes, the savings in time and gallons (up to 540 gallons more from a 10,000 gallon tank car) soon pay for your Brunner LPG Transfer Unit — keep on paying big dividends every time you use it! The reason, of course, is that the Brunner Unit not only quickly transfers all liquid to your storage tank — but also removes and liquefies gas vapors remaining in the tank car. With a simple turn of a valve, residual vapors in the tank car are removed down to recommended pressures of 15 to 20 lbs. per square inch. See the Brunner LPG Unit — see why no liquid pump can give you such savings!

WRITE FOR FREE BOOKLET that shows how to set up a highly efficient "tank car to storage" transfer system — describes the many safety and long life features of Brunner LPG Units.

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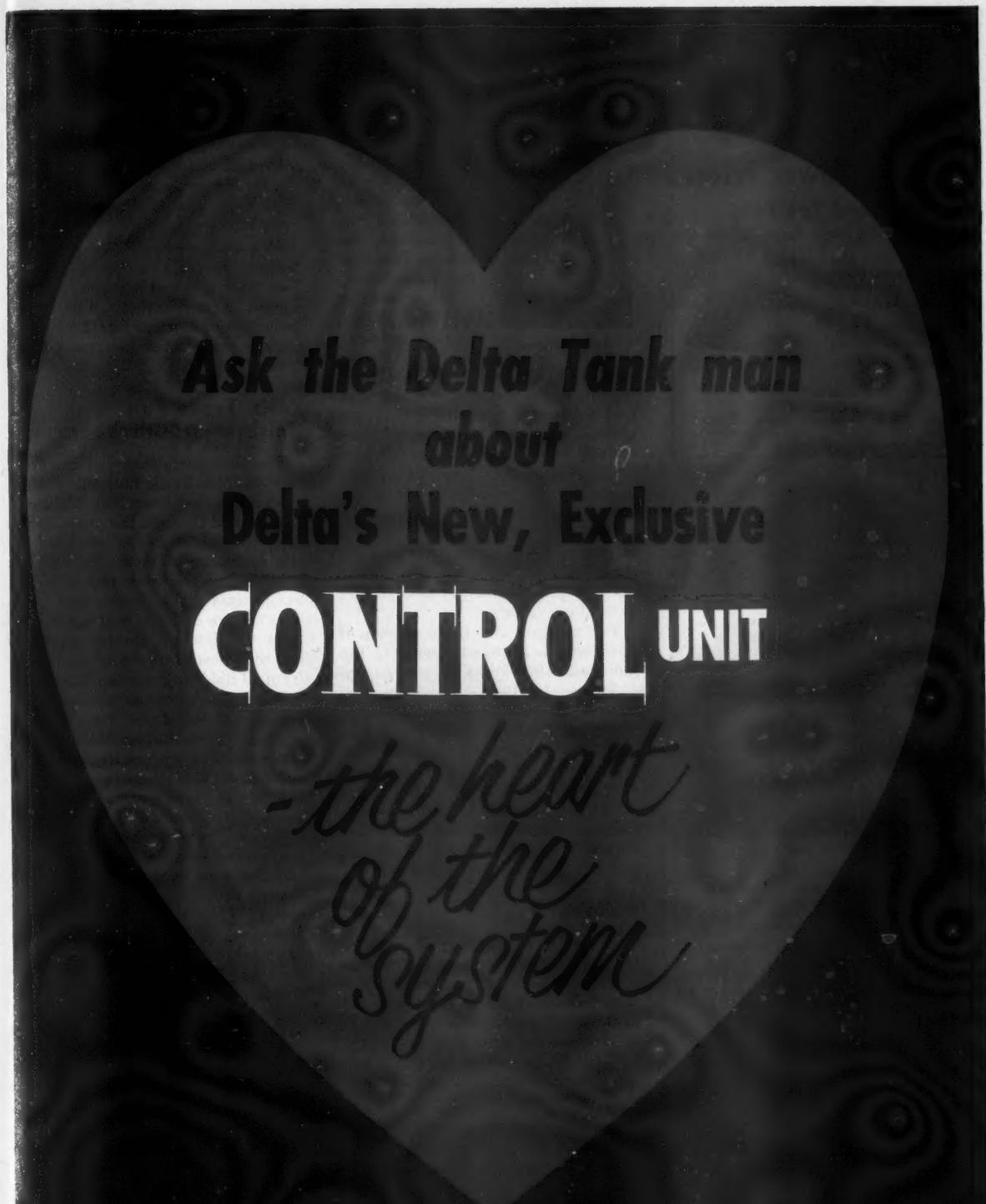
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Ask the Delta Tank man
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Delta's New, Exclusive
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WORLD'S FINEST PROPANE DELIVERY UNITS At New Lower Prices Federal Tax Paid Easy Terms Available



MODEL 100
New 1954 Chevrolet 2-ton, 2-speed axle, with 1400 W.G. twin propane tank, piped complete — \$3,845.00. With 1954 International L.P.G. factory equipped — \$4,255.00.



MODEL 200



MODEL 300

PACKAGED TRUCK TANK UNITS

Prices include tank, piped complete, Viking KK-190 mechanical seal pump, 50' 3/4" filler hose, clearance lights, tank painted, ready to use.

1400 W.G.	1600 W.G.	1800 W.G.
\$1755.00	\$1845.00	\$1960.00
Add \$150.00 for Model 200		
Add \$250.00 for Model 300		

We can furnish any make or model NEW TRUCK, including Ford, Chevrolet, G.M.C., Dodge or International (factory LPG equipped), and save you up to \$600.00 on a new truck.

Any make or model pump or meter can be supplied.

New 1954 2-ton Chevrolet, 2-speed, 825x20, 10 ply rear tires — \$2150.00 —

Hose Reels — Fire Extinguishers
LPG Carburetion

SEVERAL GOOD USED PROPANE TRUCKS FOR SALE

IMMEDIATE DELIVERY



Call
phones 570 or 686
Preston W. Grace

WHITE RIVER
DISTRIBUTORS, INC.
Batesville, Arkansas

Western Liquid Gas Holds Annual Meeting

The fifth annual meeting and trade show of the Western Liquid Gas Association will open on April 9 when some 40 exhibitors of L. P. gas equipment take over the ballroom of the Palace Hotel in San Francisco.

The meeting will be attended by L. P. gas dealers from Arizona, California, Nevada, Oregon, Washington, Idaho and Utah, along with fuel producers, marketers, tank, appliance and equipment manufacturers and many others connected with the L. P. gas industry.

Jim Potter, executive vice president of Western Liquid Gas Association, reports that "we now have the largest membership in the history of the association" and the turn-out for the fifth annual meeting is expected to be the largest yet.

The meeting and trade show will open with a business session in the morning, when speakers and papers of interest to all dealers will be presented. This will be followed by a late afternoon boat ride around San Francisco bay.

Other events of the meeting and show will include a luncheon, a "Friendship Hour," dinner and dancing, and a final breakfast at the Cliff House. New officers will be elected and introduced at the dinner.

Indiana

Two hundred and fifty people were on hand for the annual convention and trade show of the Indiana L.P.G.A. held Feb. 15-16 at the Claypool Hotel in Indianapolis, according to John E. Kelderhouse, district secretary of the L.P.G.A. Participating in the trade show were thirty distributors and manufacturers.



Newly elected officers of Indiana L.P.G.A.: left to right — Tom Crowden, president; Ted Feely, re-elected secretary-treasurer; Tom Unger, vice-president.

Featured speaker was Mel Trotter, president of the national L.P.G.A., who spoke on "Sellnig Products and Service," and then proved that he practiced what he preaches by selling an L.P.G.A. membership to Elmer Seagly Kendallville, Ind.

Professor John Hicks of Purdue University presented an interesting talk on "Population, Productivity and Progress."

New officers are: Tom Crowden, Indiana Bottle Gas Co., president; Tom Unger, Unger & Stapleton, New Castle, vice president; Ted Feely, Indianapolis Bottled Gas Co., Indianapolis, re-elected secretary-treasurer.

Paris Trade Fair Celebrates 50th Year

The 50th anniversary of the Paris International Trade Fair will be celebrated this year from May 22-June 7. Established through the years as the most important fair of its kind for the exchange of ideas, its superior exhibits and the latest industrial developments and techniques, this year's Foire de Paris will again spotlight the latest technical advances and the finest examples of production from all fields of trade and business.

The program of the Golden Anniversary of the Paris Fair includes official representation from 40 foreign countries, with an agenda of special activities planned for every day the fair is in progress. Included in these festivities will be a banquet in honor of the exhibitors who have contributed most to its success, to be presided over by the president of the French republic. The French Chamber of Commerce of the United States, on behalf of the Paris Fair, has invited Wade G. McCargo, president of the National Retail Dry Goods Association to be guest of honor, officiating at a special luncheon and presentation on Franco-American day.

Originating in 1904 with 497 exhibitors, the phenomenal growth of the Paris International Trade Fair is evidenced by the fact that in 1953, 12,000 exhibitors representing every phase of industry, presented impressive displays.

R. N. Papich Appointed Safety Consultant

Rael N. Papich, formerly field representative for safety services with the American Red Cross has been appointed safety consultant of the American Gas Association. He will succeed William H. Adams, who retired at the end of 1953.

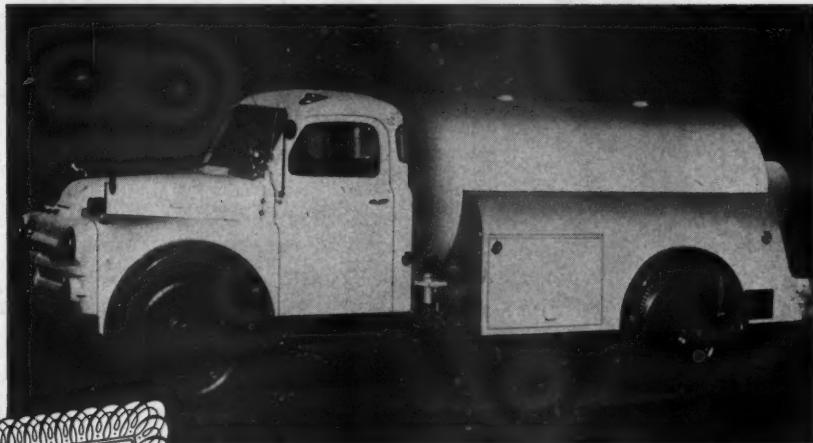
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Truck Tanks for LP Gas

* FOR

*Maximum Safety
Economical Operation
Rugged Service*



GUARANTEED

to be in safe operating condition when the tanks leave our plant. Designed to give complete customer satisfaction.

CERTIFIED

to meet exacting requirements of ASME Code and ICC Specification MC-330. Charlotte Truck Tanks are load-balanced to the chassis.

Write today for full information and prices on our line of Engineered Truck Tanks, D-Hydrated LP Gas Systems, ASME Cylinders, Duo-Tested Anhydrous Ammonia Tanks.

Charlotte Engineered Truck Tanks are furnished to fit your present truck or on a new chassis of your choice.

All wiring is sparkproof — all excess flow check and hand valves are of the highest quality.

And, in addition, twenty-nine quality construction features assure you of maximum safety, economical operation and many years of rugged service.

Charlotte Engineered Truck Tanks are available in 1248 to 2400 gallon water capacities.



CHARLOTTE TANK CORPORATION

Post Office Box 8037

CHARLOTTE 8, NORTH CAROLINA

In his capacity as safety consultant for the American Gas Association, Mr. Papich will bring to gas utility companies a wide knowledge of safety and accident prevention practices. During his association with the American Red Cross as a field representative, Mr. Papich had the opportunity of contacting and working with many industries interested in establishing accident prevention programs. In his new capacity he will serve as secretary of the AGA accident prevention committee.

LPGA Membership Seals

The Liquefied Petroleum Gas Association Inc., now has available seals to identify you as a member of LPGA in the event that you do not carry a printed membership symbol on your stationery. These seals can be used in many ways. They can be placed upon your letterheads, or other printed material, on appliances and equipment.

The price is \$3.00 per 500 prepaid. Sold in lots of 500 only.

CALENDAR

All associations are invited to send in dates of their forthcoming meetings for this calendar.

1954

APRIL

April 2-3—Northwestern District LPGA. Annual meeting, Hotel Davenport, Spokane.

April 5-7—Nebraska Liquefied Petroleum Gas Dealers Association. Annual convention and trade show, Fontenelle Hotel, Omaha.

April 9-10—Western Liquid Gas Association. Annual meeting and trade show, Palace Hotel, San Francisco.

April 12-13—Montana LPGA. Annual convention, Hotel Florence, Missoula.

April 14-16—National Petroleum Association. Semi-annual meeting, Cleveland Hotel, Cleveland, Ohio.

April 20—Maryland LPGA. Annual convention, Lord Baltimore Hotel, Baltimore.

April 21-23—NGAA 33rd Annual Convention, Baker Hotel, Dallas, Tex.

April 22-23—South Dakota LPGA Annual Convention, Marvin Hughton Hotel, Huron.

April 25-27—Mississippi LPGA. Annual Convention, Edgewater Gulf Hotel, Edgewater Park.

April 26-28—Midwest Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

MAY

May 9-12—LPGA annual convention and trade show, Conrad Hilton Hotel, Chicago.

May 17-21—National Fire Protection Association. Annual convention, Hotel Statler, Washington, D. C.

May 19-21—Gas Appliance Manufacturers Association. Annual meeting, Drake Hotel, Chicago.

May 23-25—Butane-Propane Institute (annual meeting), Roosevelt Hotel, New Orleans, La.

May 24-25—Utah LPGA. Annual convention, Hotel Newhouse, Salt Lake City.

JUNE

June 6-8—Arkansas Butane Dealers Assn. Annual Convention.

June 14-16—Missouri LPGA. Annual convention and trade show, President Hotel, Kansas City.

June 23-25—Texas Butane Dealers Association. Annual convention and Southwest Exposition, Baker Hotel, Dallas.

June 28-29—Wyoming L. P. Gas Assn. Meeting, Townsend Hotel, Casper.



Another FIRST IN THE INDUSTRY for Western means higher profits for you. WESTERN custom motor fuel tanks are now furnished in appropriate tractor colors! This special tank fits flush with the hood of the tractor and is streamlined all around. A hood-baffle prevents dust blowing through to the driver's face; installation of the tank requires no cutting or altering of tractor. Bracket is supplied for re-locating battery (shown in illustration, at left, leaning against tank), and the design of tank mounting brackets provides for simple, quick installation. Because Western Tank & Steel Corp. manufactures only custom motor fuel tanks they are able to produce quality products that assure you of higher customer sales appeal. Write for complete price list, catalogue, and further information today.

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TANK AND STEEL CORP.



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Peerless

Gas FIRED HEATING EQUIPMENT

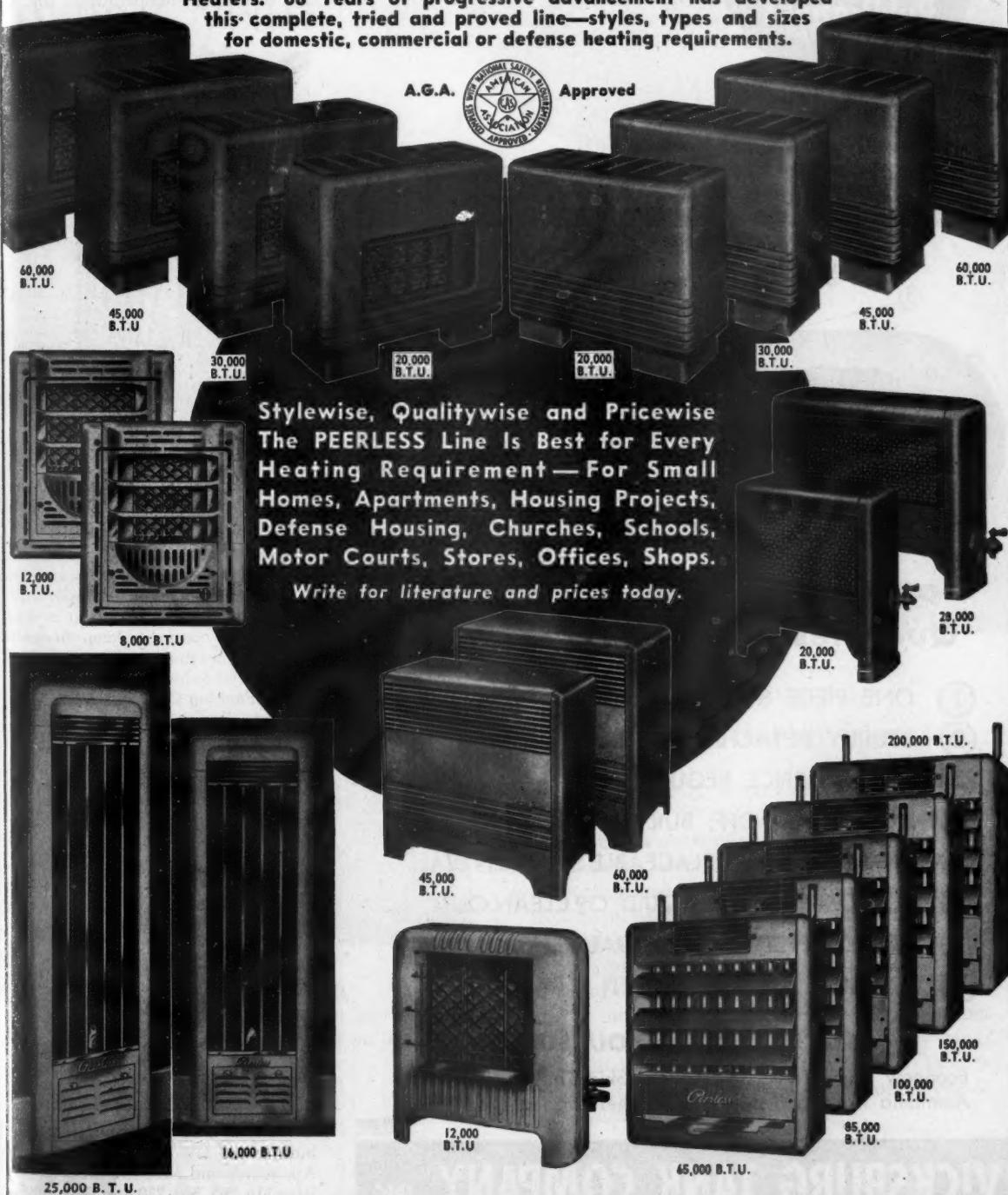
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Forced Air and Gravity Circulators, Radiant Heaters, Panel Heaters and Fan Type Unit Heaters. 68 Years of progressive advancement has developed this complete, tried and proved line—styles, types and sizes for domestic, commercial or defense heating requirements.



Stylewise, Qualitywise and Pricewise
The PEERLESS Line Is Best for Every
Heating Requirement—For Small
Homes, Apartments, Housing Projects,
Defense Housing, Churches, Schools,
Motor Courts, Stores, Offices, Shops.

Write for literature and prices today.

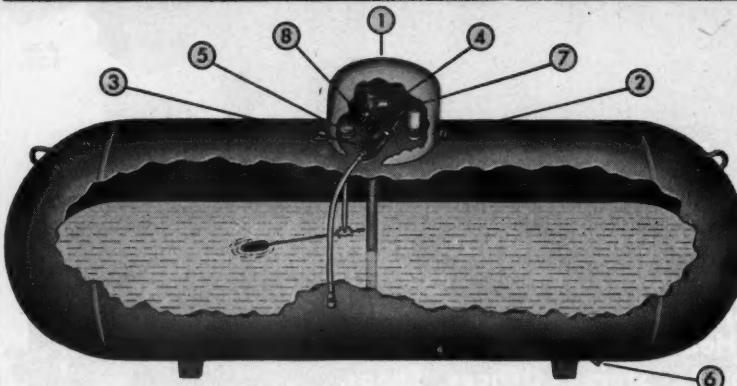


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To secure further information on products or new publications, fill out the coupon and mail, indicating by number the items desired.

Economy LP-GAS SYSTEMS



Some of the many Features and Qualities of Economy Systems

- ① ONE PIECE STREAMLINE DOME!
- ② STURDY DETACHABLE HINGE!
- ③ LARGE ORFICE REGULATOR!
- ④ LIQUID TAKE-OFF, BUILT-IN EXCESS FLOW!
- ⑤ FLOAT GAUGE, REPLACEABLE SNAP-ON DIAL!
- ⑥ BOTTOM PLUG FOR LIQUID, OR CLEAN OUT!
- ⑦ LIQUID LEVEL OUTAGE GAUGE!
- ⑧ PRESSURE GAUGE OUTLET!

SEE US BEFORE YOU BUY!

Economy Truck Tanks, Transports, Skid Tanks, Anhydrous Ammonia Tanks and all types of Steel Fabrications.

VICKSBURG TANK COMPANY, INC.

409 LEE STREET

VICKSBURG, MISS.

1. Thred-Gard

A new high temperature thread compound that protects against the welding action of threaded connections subjected to prolonged exposure and extreme heat has been developed by Crane Packing Co. Thred-Gard eliminates seizing and galling at operating temperature up to 1200° F.



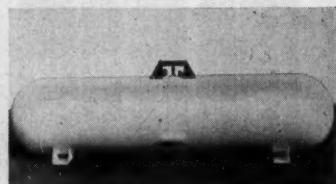
The compound is non-hardening and acts as a lubricant to allow easy dis-assembly of threaded connections. In addition, damage to stud, bolt, pipe joint, and plug threads is prevented.

By reducing wrench torque, Thred-Gard allows fittings to be drawn up to a greater degree of tightness without undue stress or strain. It acts as a protective coating to keep threaded surfaces smooth and insure pressure-tight, metal-to-metal contact.

Crane Packing Co.

2. Anhydrous Ammonia Tank

An improved fitting guard is featured in the new line of Buehler anhydrous ammonia storage and applicator tanks. The guard allows easy access for filling and withdrawing, insuring maximum safety in handling. The guard is also easily removable for servicing the fittings.



The anhydrous ammonia tanks are built to the UW52 Code—250# W.P. Applicator tanks are available in gal sizes 110, 265, 500, 770 and 1000, while storage tanks come in gal. sizes 6000 to 12,000.

Buehler Tank & Welding Works

Never a hose
failure in
over 7 years!



*"U. S." Research perfects it.
"U. S." Production builds it.
U. S. Industry depends on it.*

No wonder Acme Butane
relies upon U. S. Rubber hose

For more than 7 years, Acme Butane Co. in California has been using "U. S." Hose to handle butane and propane in its trucks and in its storage plants. Not one single hose failure has ever occurred, despite constant usage over rough ground, plus severe weather conditions.

U. S. Giant® L.P.G. Hose is constructed with a low-gauge, high-tensile yarn that provides greatest strength along with extreme flexibility. The tube is specially compounded to resist L.P.G.'s permeating action. Cover is treated to prevent blistering. Complete size range from $\frac{1}{2}$ " to 3" with burst pressures well above safety standards required by any state. U. S. Giant L.P.G. Hose is obtainable at any of our selected distributors or one of our 26 District Sales Offices.



UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

3. Hot Water Boiler



New beauty is a "plus" feature of Affiliated Gas Equipment Inc. Bryant Heater's 1954 Model 26 hot water boiler, a completely automatic boiler for radiation, convection, baseboard and radiant panel heating systems. Manufactured in nine

different boiler capacities from 67,500 to 315,000 Btu/hr input, Model 26 offers AGA approved units for natural, mixed manufactured or L. P. gases.

Styled to enhance the area in which it is installed, Model 26 may be located in a basement or utility room corner, or, where space is at a premium, in small closets where it is completely out of sight.

An exclusive Bryant automatic pilot, the "Safety Sentinel," is a safety device which prevents burner operation if for any reason a low gas pressure or other condition extinguishes the pilot flame.

A lung-like "magic action" valve assures proper flow of gas, thus promoting maximum economy and efficiency of operation. Bryant designed cast iron burners and steel heating sections extract and utilize the maximum amount of heat from the gas consumed.

Affiliated Gas Equipment Inc.
Bryant Heater Div.

4. Griddle Range

A griddle in the center is the outstanding feature of the new Brown Model 796-6 gas range. Made of cast aluminum, the griddle extends all the way from the streamlined, extra high backguard to the front of the range.

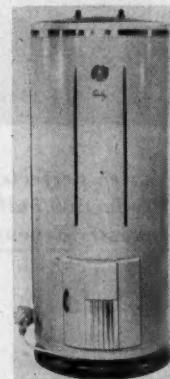


An additional feature of the new Model 796-6 is the EZE-Kleen lift-out broiler and automatic oven ignition is available if desired.

The range is fully insulated and approved for flush-to-the-wall installation.

Brown Stove Works Inc.

5. Commercial Water Heater

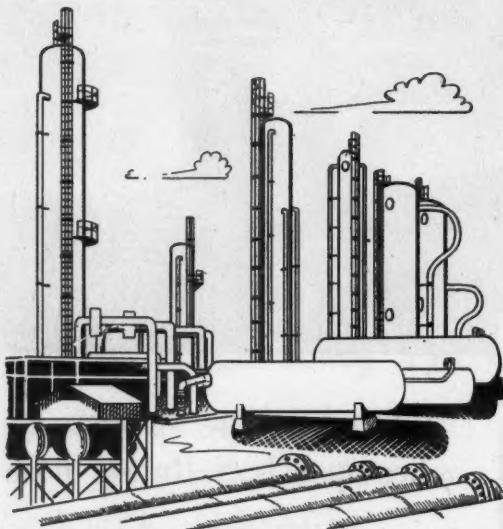


A. O. Smith Corp. (Permaglas Div.) announces that its new commercial water heater, the Model B-65, is now on the market. This glass-lined unit is designed to generate high temperature (180°) water for commercial purposes and at the same time, through an adjustable thermostatic mixing valve, will furnish general purpose hot water.

In the case of users such as small

CITIES SERVICE

LIQUEFIED PETROLEUM GAS



... in L. P. gas also Cities Service means Good Service

- A DEPENDABLE SOURCE
- UNIFORM PRODUCTS
- A CAPABLE SUPPLIER
- TWENTY-FIVE YEARS EXPERIENCE

CITIES SERVICE OIL CO.

DELAWARE

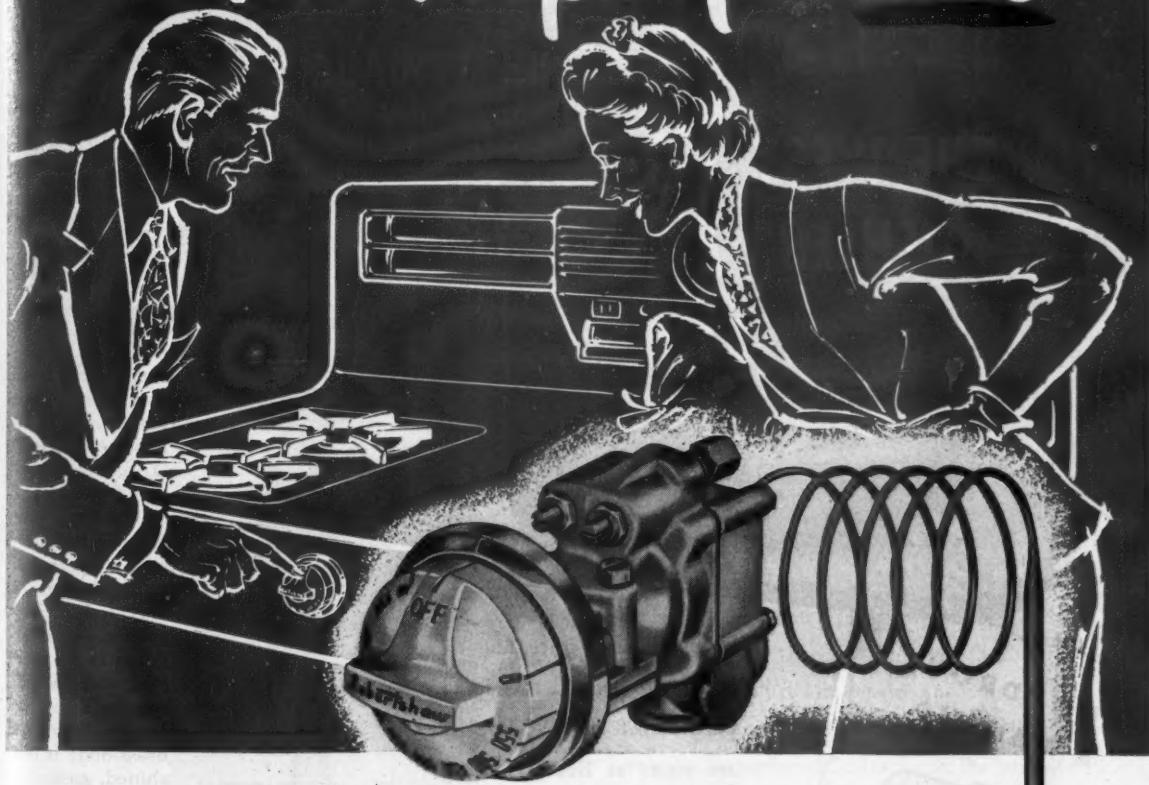
Bartlesville, Okla. Chicago, Illinois

OTHER SALES OFFICES

Cleveland • St. Paul • Kansas City • Toronto



Select the control that helps you sell-



Robertshaw® MODEL BJ OVEN HEAT CONTROL

Millions of Model BJ Controls in service today have earned for themselves a nation-wide reputation for high quality and dependable performance. These qualities have won the confidence of dealers and range manufacturers alike.

And you get more than high quality and dependable performance! You get national accept-

ance and recognition from millions of American homemakers who have learned from experience and from consistent national advertising to prefer . . . and to buy . . . gas ranges equipped with Robertshaw BJ Controls.

Select the best-known name in oven heat controls...and make your gas ranges easier to sell.

Increase your sales
with Mr. Controls



Robertshaw-Fulton

CONTROLS COMPANY

ROBERTSHAW THERMOSTAT DIVISION, Youngwood, Pennsylvania

restaurants, this device eliminates the need for two water heaters. The B-65 may be applied to general purpose hot water requirements for many other commercial establishments as well as large homes. The unit incorporates all the latest requirements of the American Gas Association.

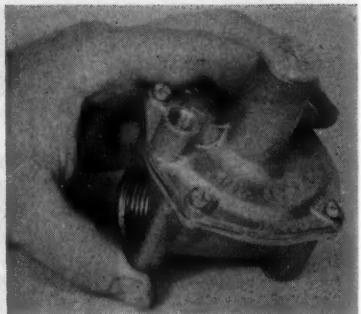
A. O. Smith Corp.

6. Gas Pressure Regulator

Maxitrol Co., manufacturers of gas regulators, announces a new unit

with excellent lock-up and pilot-flow regulation characteristics. This new regulator, the Model RV-41, is designed for normal operation with a vent breather hole which will pass less than 1 CFH per hour in case of diaphragm failure. Thus, in many cases it eliminates the necessity of a separate vent leak limiting device and vent tubing.

Application on ranges is particularly outstanding because it is capable of controlling pilot flows only when all the burners are shut off, yet still has adequate capacity for the full

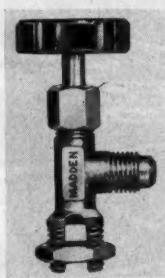


range input. Construction is small, compact, with a non-metallic resilient valve seat. All parts are accessible by removing only the top cover.

The RV-41 is primarily for use on domestic ranges, water heaters, floor furnaces, wall heaters, room heaters, low capacity central heating furnaces, and industrial burner pilot controls.

Maxitrol Co.

7. Valve and Swivel Tee



Two new products are now available from Madden Brass Products Co. A Duo-Test port valve provides a means for a permanent gauge port on hermetic units. It can be mounted in any position — installation is quick, easy and doesn't require special tools. Forged brass body is machined, gasket is recessed. The Duo-Test hermetic port valve has $\frac{1}{4}$ -in. male flare. Tubing sizes are $\frac{1}{4}$ -in., $\frac{5}{16}$ -in. and $\frac{3}{8}$ -in. O.D. The new

swivel tee is designed for use in close, hard-to-get-at spots on modern hermetic units. It provides a means of installing a pressure relief valve or gauge quickly, easily and inexpensively. This new Madden swivel tee also may be used to provide an access to hermetics for purging, charging, testing, etc. Its swivel action makes it applicable in many other cases where limited working space is a factor. Male and female flares range from $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in. Pipe size range from $\frac{1}{8}$ -in. to $\frac{3}{8}$ -in.

Madden Brass Products Co.



**IN THE WEST
IT'S BUEHLER**

LP-GAS

**ANHYDROUS
AMMONIA**

You'll be surprised to learn what we have to offer you in this new field — a complete line of Anhydrous Ammonia tanks. Ask your Buehler representative or write us for complete information.

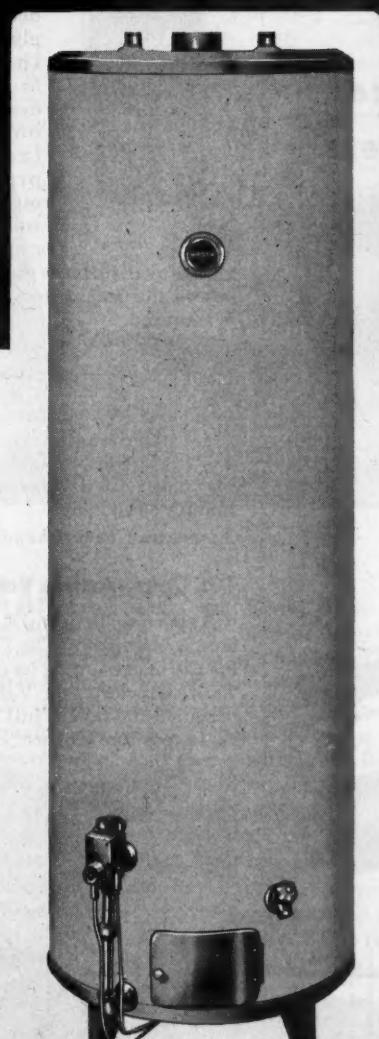
Quality and price, the two most important factors in the purchase of an LP-Gas plant, are yours at Buehlers. Large production schedules in our shop mean lower costs — lower prices. Close proximity to our customers means lower delivered cost. Remember "IN THE WEST IT'S BUEHLER."

THE NAME TO LOOK FOR ON AN LP-GAS PLANT

BUEHLER
TANK & WELDING WORKS
3000 PACIFIC BLVD., LOS ANGELES 58, CALIFORNIA

QUALITY YOU CAN SEE

After 9 years of research...
**TWICE THE PROTECTION
AGAINST RUST!**



**two
walls
of
glass**

MISSION ACCOMPLISHED! Since 1945 Mission engineers have been devoted to the task of developing a water heater that would answer the problem of rust failure and service annoyance.

Gleaming Pyro-Glass, the toughest glass lining ever made, performed miracles in the laboratory. Not content with ordinary results, however, Mission engineers finally hit upon the solution of fusing a second lining of Pyro-Glass to the first. The result? *Double protection* against tank failure. Double the *sales appeal*, too, of ordinary single glass lining, without added cost!

In 30 and 40 gallon sizes.

MISSION

Doubleglas GAS WATER HEATERS

MISSION APPLIANCE CORPORATION Hyde Park Station Los Angeles 43, California
APRIL, 1954

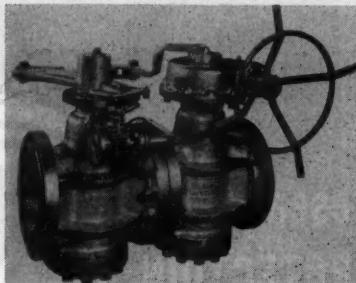
8. Piping Transfer Blind

A new blind designed to increase the safety and simplicity of mechanical blinding operations in fluid product piping transfer systems has been introduced by Rockwell Manufacturing Co.

Believed to be the first major innovation of its type since positive blinding was first developed nearly 20 years ago, the Rockwell blind consists of two straightway Nordstrom Hypreseal valves butted together in series and operated in unison through

a common linkage.

A bleeder valve is located between



Mutual

YOUR FIRST CHOICE

**butane-propene
liquid vaporizer
burners**



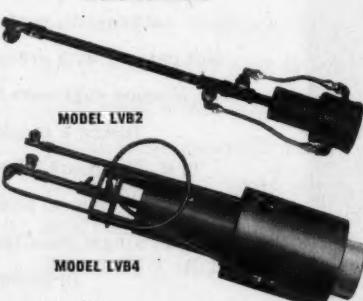
Look at
these sales and profit
possibilities!

Mutual burners are "fast movers" and good load builders, too. They are adaptable to dozens of medium and heavy duty industrial uses. Mutual design and construction make selling easy. These simple, foolproof Butane-Propene burners are self generating and utilize liquid direct from the tank. A needle valve adjustment instantly controls the flow of gas for best combustion mixtures. All Mutual Liquid Vaporizer Burners are compact, rugged working tools with no moving parts. Mutual quality—known throughout the industry—assures top performance in the field, as repeat sales prove. Write for catalog and prices.

Mutual

MUTUAL LIQUID GAS EQUIPMENT CO., Inc.
3638 W. IMPERIAL HIGHWAY
INGLEWOOD, CALIFORNIA

- KILNS MODEL LVB6
- DRIERS
- ROAD OIL EQUIPMENT
- MELTING COMPOUNDS
- DEHYDRATION
- EVAPORATORS
- WEED BURNERS



	MODEL LVB2	MODEL LVB4	MODEL LVB6
Rated Consumption	3 gal./hr.	10 gal./hr.	45 gal./hr.
Rated Capacity	280,000 BTU/hr.	700,000 BTU/hr.	3,500,000 BTU/hr.
Size of burner head (I.D.)	2"	3"	6"
Overall length	25"	24"	36"
Weight	7#	30#	65#
Approximate shipping weight	8#	50#	80#

the two Hypreseals, and is also operated through the same linkage in such a way that when the two block valves are turned to the closed position the bleeder is automatically opened.

Use of the new blind obviates the necessity for precise piping alignment to prevent binding in the blind. Rockwell Manufacturing Co.

9. Leak Detector

"Leak-Tex" is a sensitive liquid developed from a special formula for

detecting the most minute leaks where gas or air is used. The manufacturer claims that the product will detect leaks simply by squirting this material from a specially designed plastic bottle on surfaces or around piping. The liquid will penetrate rust scales, cracks, and

creeps over surfaces creating bubbles where the leak occurs. No brushing is required.

The liquid is non-inflammable, non-explosive and non-injurious to the person using it. It is being used extensively by maintenance crews for gas installations, testing for leaks on gas filled electric cables and transformers, refrigeration and air conditioning equipment.

American Gas & Chemicals, Inc.

10. Quick-Acting Valve

A speed-up in filling L. P. gas cylinders is claimed by The Bastian-Blessing Co. in presenting its new Rego No. 7553S Quick-Acting Valve, which is designed for quick, full opening and rapid, positive closure.



is something

ALWAYS

missing?

(to cut your profit)



...then switch to the one line that meets every selling need

***EXAMPLE No. 2:** You'll agree that maintaining your profit depends largely on minimizing profit-shrinking "call backs" or better—eliminating them entirely. That's why—at Bryant—we strive *first* to give you a quality product . . . secondly for a competitive price. And that's why, as a Bryant dealer you can confidently expect this significant selling advantage. A quality product . . . priced to sell competitively . . . engineered to protect your profit . . . designed to become a permanent advertisement for your services.

Your nearby Bryant Distributor has complete details. It will pay you to call him today.

Bryant Heater Div., Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio

bryant
HEATING AIR CONDITIONING
WATER HEATING

- 1. The most complete line in the industry
- * 2. Quality products—Competitively priced
- 3. Established name—Good customer acceptance
- 4. Broad, attractive profit margins
- 5. Local Distributor warehousing and service
- 6. Factory district representatives and traveling sales training and service teams



More and more mechanics say...

Our Pipe Wrench Replacements in '54 are being made with the NEW TOLEDO

TOLEDO Heavy-Duty Pipe Wrench

★ Unconditionally Guaranteed!

Just introduced — and making friends fast! See 'em—try 'em on your next job!

New Toledo Wrenches speed the work with easy handling . . . instant non-slip grip on pipe . . . replaceable jaws with spin-easy nut and single spring for quicker, easier setting . . . improved handle design for increased strength, better hand-grip. 6" to 48" sizes.

Unconditionally Guaranteed! If wrench housing or hook ever breaks or distorts, we will replace it **Free**. Write for new catalog. Order through your supply house. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

Rely on the Leader . . . all the way!

TOLEDO

PIPE TOOLS • POWER PIPE MACHINES • POWER DRIVES

For use primarily on cylinder filling manifold hoses, the valve can also replace wheel handle shut-off valves on existing loading hose assemblies.

By means of a special plastic insert in the bonnet, cam action of the lever handle has been provided with an ideal friction-free bearing surface. Valve handle operates in a 90° arc, from full open position (vertical) to fully closed position (horizontal). Valve handles can be swiveled horizontally to permit operation in any desired direction.

Increased capacity and safer, longer operating life are two additional advantages of the new valve which is listed by Underwriters' Laboratories, Inc.

Bastian-Blessing Co.

11. Technical Bulletins Available

Ansul Chemical Co., pioneer in dry chemical fire equipment, is making available to all interested parties its entire list of 15 technical bulletins covering recommended procedures for protecting many difficult and unusual fire hazards.

The list available includes: Effect of packed dry chemical on operation of Ansul dry chemical fire extinguishers; fires in molten salt hardening baths; effect of Ansul dry chemical on electric motors and generators; fire hazard—lithium aluminum hydride; fire hazard—storage of sodium nitrate; fire hazard—sulfur; transformer oil fires in crushed stone; recommended fire protection of liquefied petroleum gas storage, unloading and processing areas; fire hazard—aircraft flares; nitrogen as an expelling agent for dry chemical fire extinguishers; temperature correction chart for checking pressures of 110 cu ft and 220 cu ft nitrogen cylinders; temperature correction chart for checking pressures of 400 cu ft nitrogen cylinders; carbon dioxide cartridges; natural gas fire tests; ef-

fect of dry chemical extinguishing materials on the visibility of seeds.

Ansul Chemical Co.

12. Vertical Type Muffle Furnace

The Atmotrol vertical type muffle furnaces are described in a new bulletin just released by Surface Combustion Corp.

Bulletin SC-165 includes a detail construction drawing, depicting important design features, photographs of typical applications with types of parts being treated, and descriptions of accompanying equipment — controlled pits and prepared atmosphere generators. Handy engineering data and charts on the application of RX atmospheres to heat treat processing are also included.

Surface Combustion Corp.

13. Displacement Meters

American Meter Co.'s comprehensive 275-page book on displacement gas meters has been reprinted by the company as a service to the gas industry.

The handbook, edited by John C. Diehl, draws on the extensive experience of American Meter Co., accumulated in the field over a period of 117 years and is said to be the most authoritative compilation of its kind in existence. All phases of displacement meters are covered from fundamental principles of gas measurement to proving, maintenance and repair of Tinned Steelcase and Ironcase Meters. Profusely illustrated with pictures, diagrams and charts, the book also includes many tables and other data. Contents are cross indexed for ready reference, and printing is on high quality coated paper stock, sturdily bound in imitation leather.

The company makes these well known handbooks available at the reprint cost of \$4.50 per copy.

American Meter Co.



READERS' SERVICE COUPON

Just fill in this coupon for Products information and copies of new publications, and mail to

BUTANE-PROPANE NEWS, 198 S. Alvarado St., Los Angeles 57, Calif.

4/54 Fill in numbers of items in which you are interested.

No.	No.	No.	No.
No.	No.	No.	No.

NAME AND TITLE.....

FIRM'S NAME.....

ADDRESS.....

CITY..... ZONE..... STATE.....

Humphrey ANNOUNCES ... a distinguished new series of vented RADIANTFIRE CIRCULATORS



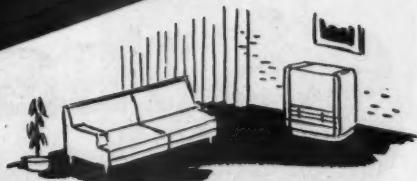
Model 20-HV
20,000 b.t.u. input per hour



Model 40-HV
40,000 b.t.u. input per hour



Model 60-HV
60,000 b.t.u. input per hour



HERE ARE THREE new Humphrey Radiantfire Circulators of brilliant styling and improved mechanical design. Many advanced features in construction and styling. Choice of two finishes—rich, two-tone Opalescent Brown with Chrome trim; or deluxe Blonde with golden-toned chrome trim. *Write for literature and prices.*

GENERAL GAS LIGHT CO. • KALAMAZOO, MICH.

MUELLER CLIMATROL—Two promotions of plant management personnel were announced recently: Carl Quick, former head of plant personnel, to director of industrial relations, and Bob Johnston to production manager.

Curt Hoerig will be the new assistant to the vice president in charge of manufacturing.

WORTHINGTON CORP.—John J. Jirasek was recently appointed sales manager for the newly created Southwestern Regional Sales Organization.



AMERICAN CAR AND FOUNDRY CO.—The newly appointed works manager at the St. Charles, Mo., plant is Norman E. Carlson. Mr. Carlson succeeds Roy D. Jablonsky.

AMERICAN METER CO.—William G. Hamilton Jr., president, has announced the following appointments: George W. Stevenson, former general manager of the Los Angeles factory, was named as manager of west coast operations. In this capacity Mr. Stevenson will be in charge of the company's factories and activities on the west coast.

Donald C. Holtz, with American Meter since 1935, will be the new manager of the Nebraska City factory. He is being transferred from the Dallas plant.

TRUCK DELIVERY or DOMESTIC STORAGE TANKS

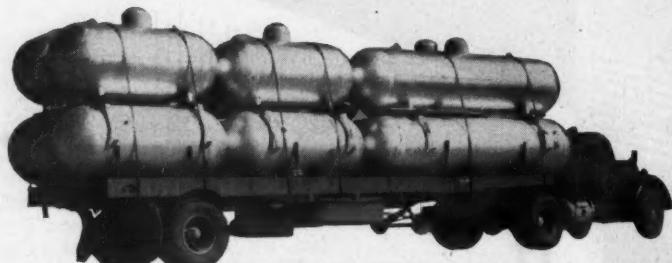
Go Bagwell-General!

Engineer designed, built to specifications and field tested, you can depend upon Bagwell-General Truck or Domestic Storage Tanks.

* ASME U69 to meet all Federal and State Requirements, our tanks are U/L Approved.



1250 to 1450 W.G. Full Streamlined



Domestic Tank for Pick-up, Trailerload or Carload

Write for Further Information and Prices

**BAGWELL-GENERAL
STEEL CO.**
SAPULPA, OKLAHOMA

Write
P. O.
Box 391

Telephone
Sapulpa 2680
Tulsa 50-8500



TWIN OR
SINGLE BARREL

LIGHT
WEIGHT

LOW COST

FULL OR
SEMI-
STREAMLINED



G. W. Stevenson



D. C. Holtz



J. W. Burg



D. C. Wiley

COLEMAN CO. INC.—Charles O. Slaby has been appointed zone manager for the new western zone office in Omaha.

Associated with Mr. Slaby will be Paul W. DeGood, Harry H. Pike, Robert E. Lyda, and Lewis White, all regional sales managers.



**When they say
they prefer gas . . .**

Show them the EMPIRE the country's largest selling GAS BOILER and make another satisfied customer!

■ The Empire has everything a home owner could ask for in a heating unit. It is precision engineered, sturdily constructed, handsomely styled.

Made in a wide range of sizes for hot water systems (with a special series for steam), the Empire is ideally suited for small homes, individual apartments, or small commercial establishments.

To facilitate quick and easy installation, controls, valves and control piping are factory-assembled as far as practical.

For complete details about this popular boiler, ask your wholesale distributor for Form No. 313 (hot water) or Form No. 919 (steam).

American Radiator & Standard Sanitary Corporation
P. O. Box 1226, Pittsburgh 30, Pa.



AMERICAN-STANDARD
HOT WATER HEATING

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE
DETROIT CONTROLS • KEWAHEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS



A Winner
by any comparison
Feature for Feature
Dollar for Dollar

By any measure of comparison, the Empire Gas Boiler is a great value . . . for you . . . for your customers!

WARREN PETROLEUM CORP.—A. E. Moore, Louisville, Ky., has been named president of The Dri-Gas Co., a division of Warren, with headquarters in Chicago. The appointment was effective March 1.

Mr. Moore succeeds Walter H. Miller, who has resigned to take a new position with Warren for the performance of special duties and assignments. He will continue to make Chicago his headquarters.

J. O. Thompson, formerly manager of the bulk sales division of The Dri-Gas Co., has been appointed assistant to the new president.

In accepting his new position, Mr. Moore leaves the management of Warren's LPG district sales office at Louisville, which he opened Jan. 1, 1951, following his transfer from the management of the Mobile, Ala., district office which had been established three years earlier by him.

WHITE PRODUCTS CORP.—A. D. Vining, executive vice president and general manager, has recently announced the appointment of Robert Lareau as his administrative assistant. Mr. Lareau will assist Mr. Vining on matters of tax and finance.

PHILLIPS PETROLEUM CO.—Fred W. Cordell, director of market development, has been named division manager of the newly established sales division, which will have its headquarters in Atlanta. The new division will include parts of Tennessee, Alabama, and Georgia, and all of North and South Carolina.

Working with Mr. Cordell will be G. J. Morrison, assistant manager, and H. M. Calloway, marketing assistant.

H. L. Keller has been named assistant division manager at the St. Louis sales division, while Howard Gardner has been promoted to credit manager, succeeding John L. Adams, who was transferred to the Omaha sales division office as credit manager, replacing Mr. Keller.

In the Minneapolis sales division E. H. Woehrle and H. N. Nelson were both promoted to assistant division managers.

TEMCO INC.—The manufacturing division has announced the following recent personnel changes: C. F. Bauman, former manufacturing superintendent, has been named director of manufacturing; Richard Douglas, former production manager, has been appointed director of purchasing. Cecil G. Stokes has joined the organization as director of production engineering.

*Built to Make Your
Hose Connections
Extra Safe!*

"G J-BOSS" **STYLE X-34**

GROUND JOINT FEMALE COUPLINGS

You can always be sure of the *safety* of any L-P Gas hose connections when these strong, durable, high-pressure couplings are used. Furnished with powerful-grip "Boss" Offset and Interlocking Clamps. All parts steel or malleable iron, completely rustproofed. Sizes $\frac{1}{4}$ " to 6". Also available in washer type, and with companion "Boss" Male Couplings.

Stocked by Manufacturers and Distributors of Industrial Rubber Products.

DIXON *Valve & Coupling Co.*

GENERAL OFFICES & FACTORY PHILADELPHIA 22, PA. BRANCHES CHICAGO
BIRMINGHAM • LOS ANGELES • HOUSTON • DIXON VALVE & COUPLING CO., LTD., TORONTO
ASSOCIATE COMPANIES—BUCK IRON COMPANY, INC., QUARRYVILLE, PA. • PRECISION DRAWN STEEL COMPANY, CAMDEN, N.J.



C. F. Bauman



Richard Douglas

WHIRLPOOL CORP.—John A. Hurley, vice president, has announced the following appointments: Roy Howard, former sales promotion and advertising director, as merchandising manager; Jack Sparks, former advertising and sales promotion manager, as national sales promotion manager; Jack Sullivan, former sales promotion manager of the dryer and ironer division, as advertising manager.

The Perfect RANGE for today's LP market...

the
new

PERFECT

**a Sales
Eye-Opener**

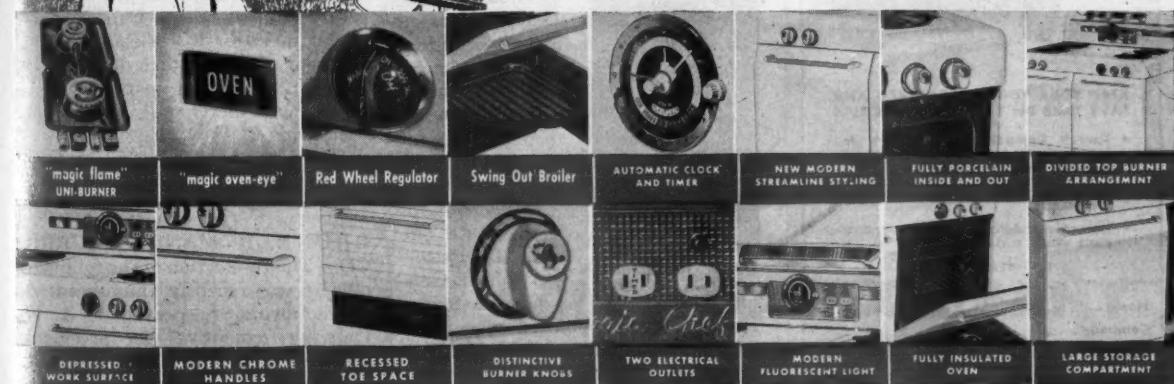
Here's the modern new gas range that means faster, easier, EXTRA LP sales for you because it's custom-designed to the needs of so many of your prospects today. The *Magic Chef* Perfect 36 is big-range luxury and efficiency that fits beautifully into the smaller space allowed in modern compact kitchens. Sell the range that's designed to your LP customer's desires... the all-new *Magic Chef* Perfect 36!

designed especially for
today's modern compact
kitchen!...the all-new
PERFECT 36

Magic Chef
GAS RANGE

Just 36 inches wide but L-O-N-G on beauty and performance! The new *Magic Chef* Perfect 36 gives you the convenience of a smaller size range plus graceful styling AND the big automatic features that distinguish a really fine range. See the range that's completely ahead in modern design, features and performance... see the new *Magic Chef* Perfect 36 today!

**today's most
SENSATIONAL VALUE**



more women cook on *Magic Chef* than on any other range

MAGIC CHEF, INC. • 1641 S. KINGSHIGHWAY • ST. LOUIS 10, MO.



- The accepted standard odorant for natural or liquefied petroleum gas — gives sure but harmless warning.
- Purified — Moisture-free — PROTECTS FIXTURES. Meets all 15 qualifications of National Bureau of Standards.



MALLINCKRODT CHEMICAL WORKS
Mallinckrodt St., St. Louis 7, Mo.
72 Gold St., New York 8, New York

KARYALL COMPARTMENTS

help you earn more profits



KEEP YOUR TOOLS ORGANIZED AND
SAVE TIME ON YOUR SERVICE CALLS

- Karyall Compartments convert any $\frac{1}{2}$, $\frac{3}{4}$ or 1 ton pick-up truck into a handy mobile service unit.
- Complete with brackets for easy installation.
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Company _____
Address _____
City _____ State _____

KARYALL BODY, INC.
8221 Clinton Road Cleveland 9, Ohio
Department B

DOWINGTON IRON WORKS, INC.—Herbert E. Brumder was recently elected president of this company which is a division of Pressed Steel Tank Co. Mr. Brumder was formerly general manager and prior to that was chief engineer with the parent company in Milwaukee.



H. E. Brumder

New personnel changes just announced include the following: Edward C. Ashton, manager of sales of heat transfer equipment, and the appointment of K. M. Irwin as manager of the New York sales office.

FLORENCE STOVE CO.—R. H. Taylor, president, has announced the realignment of his sales force due to the transfer of headquarters from Gardner, Mass., to Chicago.

J. J. Manning will continue as manager of sales for the range division. H. R. Singleton, former midwestern sales manager, will assume the post as liaison between the president and the operating organization. He will be assisted by H. M. Palmer. L. G. Torbett will continue as service manager with headquarters at Lewisburg, Tenn.

C. F. Lucas will be sales manager of the southeastern division, headquartered in Atlanta. T. P. Nugent continues as sales manager for the northeastern division, headquartered in New York. T. E. Cook, southwestern division, and R. D. Nugent, western division, will continue as sales managers.

GENERAL GAS CORP.—R. D. Phillips, president, has announced the election of I. W. (Pat) Patterson as vice president and general manager. Mr. Patterson will have full responsibility for operational policies.



I. W. Patterson

A former Louisiana state official, Mr. Patterson joined General Gas in 1945 as sales manager. He was later appointed vice president and a member of the board of directors.

N. E. Wooters, a former executive with Servel Inc., has assumed the duties of sales manager.

J. B. BEAIRD CO. INC.—The following recent changes among sales representatives have been announced by J. L. Tullis, general manager of sales: William Guldridge, formerly in the midwest territory, has been transferred to the west coast, while George Adams will replace him in the mid-West. R. Doug Winn recently joined Baird as a salesman in the Texas area.

DRAKE & TOWNSEND—Monty F. Woodruff has joined the engineering staff. He will be available to utilities and industries interested in propane plants for augmentation, standby and 100% town or plant gas supply. He will headquartered at the New York office, 11 West 42nd St.

RHEEM MANUFACTURING CO.—Andrew W. Hughes has been named eastern region manager in charge of the manufacturing and marketing activities on the eastern seaboard. He will also be in charge of four Rheem plant operations in the East.



A. W. Hughes

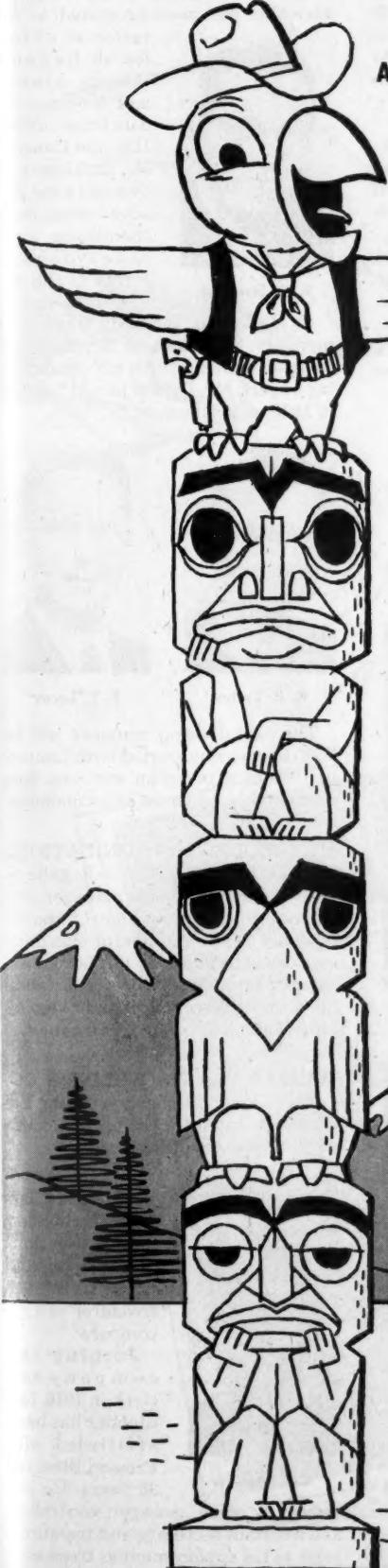


T. A. Kelly

Thomas A. Kelly, former manager of the Philadelphia plant, has been named to the newly created post of manager of manufacturing planning. He will headquartered in Richmond, Calif.

Carlos H. Horne was promoted recently from northern California regional manager to assistant general manager of the western division. He will assist division manager E. C. Bergen with merchandising and manufacturing activities on the west coast, with headquarters in Richmond, Calif.

BRUNNER MANUFACTURING CO.—The re-election of the following officers was recently announced: A. G. Zumbrun Sr., president; A. W. Detwiler, executive vice president; F. C. Hawk, vice president in charge of sales; E. H. Schiller, vice president in charge of purchasing; A. D. Sullivan, vice president in charge of engineering.



AMONG THE INDEPENDENT MARKETERS OF LP-GAS...

IN THE WEST CALOR IS TOPS!

- Dependable sources of supply.
- Storage and transportation facilities that assure on-schedule delivery the year 'round.
- An experienced organization that brings new loads to our customers and new customers to CALOR.

Put CALOR and CALOR'S brand of service to work for you. Yes... better see CALOR *now* and you, too, will agree—it pays to deal with the *West's* leading independent marketer of LP-Gas.



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Serving Western America

BASTIAN-BLESSING CO.—The retirement of Earl M. Eyleth, west coast district manager, was announced recently by Ellsworth Mills, president.



E. M. Eyleth
the Chicago offices where he designed

and developed welding and cutting equipment. After a short period with Hanlon-Wilson Co., Mr. Eyleth returned to Bastian-Blessing to design L. P. gas equipment and in 1950 to become west coast district manager.

ROBERTSHAW-FULTON CONTROLS CO.—Joseph C. McCarthy was recently appointed Canadian sales representative for the thermostat, American thermostat, and Grayson divisions, while Robert O'Hara has joined the Fielden Instrument division's Detroit office as sales engineer.

Mr. Eyleth joined the company in 1925 as an engineer at the Grand Haven, Mich., plant and was later transferred to the Chicago offices where he designed

LENNOX FURNACE CO.—R. D. Strickler has been promoted to director of sales for all Lennox furnace plants and Norris industries in the U.S. and Canada.



R. D. Strickler

Mr. Strickler will coordinate the advertising, merchandising and sales departments of the entire organization. C. B. Lytton, formerly division manager, will succeed Mr. Strickler as sales manager. An air conditioning expert, Mr. Lytton joined Lennox in 1946 as a salesman.



C. B. Lytton



F. T. Locey

The new division manager will be F. T. Locey, who started with Lennox in 1952 as a salesman and was then promoted to assistant sales manager.

MOTOROLA COMMUNICATIONS & ELECTRONICS INC.—Eugene S. Goebel, national sales manager, has announced the promotion of Harold A. Jones to the position of executive assistant. In addition to his new responsibilities Mr. Jones will retain his present direction of the two-way radio technical information center.

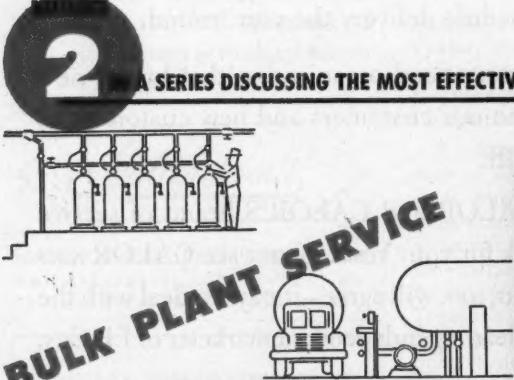
MASTER TANK & WELDING CO.—Loyd Disler, formerly with the Edwards Co. in Tulsa, has been appointed to the sales staff.

board of directors has elected Clarence E. Stender, former assistant secretary and treasurer, as treasurer of the company.



C. E. Stender

Joining the company as a clerk in 1916, Mr. Stender has been affiliated with Pressed Steel for 38 years. He has served as office manager, controller, and assistant secretary and treasurer, prior to his appointment as treasurer.



The size of pump to select for your bulk plant will depend upon the amount of pumping to be done, the types of services to be handled, and the importance of speed in transferring. It is also necessary to consider the limitation to be placed on expenditures, as installation and operating costs are much higher for large pumps than for smaller models. For small bulk plants, the 35 GPM Model MC-1044H pump is a good choice. When properly installed, it will transfer into storage and load delivery trucks at about 2000 gallons per hour. It will fill up to 4 cylinders on a manifold in from 3 to 5 minutes.

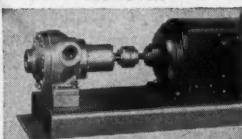
For the average bulk plant, the 50 GPM Model MC-2 pump will transfer into storage and load delivery trucks at about 3000 gallons per hour. It will fill up to 6 cylinders on a manifold in from 3 to 5 minutes.

Where very fast transfer into storage is required, and sufficient output to load two delivery trucks at the same time is desired, the 100 GPM Model MC-3 should be specified. When properly installed with 3" piping and valves, this pump will deliver about 6000 gallons per hour. The MC-3 has too large an output to be economical in cylinder filling service unless about 12 cylinders are filled simultaneously on a manifold.

Smith Precision Pumps cover a range of capacities from 4 to 150 GPM. There are six sizes of pumps for direct connection to electric motor drives at 1800 RPM, and four sizes for truck mounting, to be operated at the lower speeds of 500 or 900 RPM. Write to us for further details, and for installation suggestions.

SMITH PRECISION
Butane-Propane
PUMPS

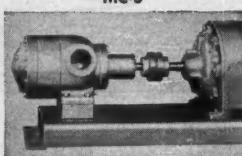
MC-1044H



MC-2



MC-3



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MEMO

for accurate, extra
service L P gas meters
and regulators —
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Regulator



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DAVENPORT, IOWA
SAN FRANCISCO, CAL.

THE SPRAGUE METER COMPANY
BRIDGEPORT 4, CONNECTICUT

Butler Mfg. Stresses "Old-time Selling"

The return to "old-time selling" was stressed to some 200 salesmen and officials of the Butler Manufacturing Co. at a three-day general sales conference, which started Feb. 2, at Excelsior Springs, Mo., Glen C. Speakman, Butler vice president in charge of sales, announced.

Highlighting the conclave was the revelation of four new steel products, and a "Products Revue," employing professional actors and 20,000 sq. ft. of floor space in Kansas City's giant municipal auditorium.

Butane-Propane News

Robertshaw-Fulton Building New Plant

Ground has been broken for a new 237,000 sq ft plant in Long Beach, to house the Grayson Controls Division of the Robertshaw-Fulton Controls Co. The Grayson division is presently located at Lynwood, Calif.

The new Long Beach plant is part of an extensive national expansion

program which the company has under way. A large percentage of control equipment used in domestic home appliances is made by Robertshaw-Fulton, plus a wide variety of industrial controls and electronic instruments.

To be built at a cost of approximately \$2.5 million, the new plant will increase greatly the manufacturing capacity of the Grayson division, and will employ about 2400 people with an annual payroll in excess of \$7 million.

The two factory areas will feature wide span bays of 100 ft and overhead clearance of 16 ft with high intensity fluorescent lighting throughout. The attached office area will be completely air conditioned.

Mueller Furnace To Be Division of Worthington

Harold P. Mueller, president of the L. J. Mueller Furnace Co., and Hobart C. Ramsey, president of the Worthington Corp., have announced an agreement for the transfer of the net assets, name and good-will of Mueller to Worthington in exchange for Worthington common stock. A special meeting of preferred and common stockholders of the Mueller Furnace Co. will be called to vote upon and approve the proposal.



■ Don't delay — find out how underground storage can solve your storage problems. It's cheaper, safer and better. Call or write . . . NOW!



Sandy Billups

**SECURITY UNDERGROUND
STORAGE COMPANY**

PHONE 2-4067 615 SUNSET DRIVE WICHITA FALLS, TEXAS



Hobart C. Ramsey, president of Worthington Corp., welcoming H. P. Mueller Sr., president of L. J. Mueller Furnace Co., into the Worthington organization.

Mr. Ramsey stated that the Mueller plant and facilities would be operated as the Mueller Climatrol Division of Worthington, and that the entire working force and management

BUTANE-PROPANE News

From California
to Florida...

**Dealers
are learning
that you can't
beat American
"Better-Bilt"
LP Trucks and
Transports!**

Read what this Satisfied User
Says about AMERICAN
"Better-Bilt" Delivery Trucks

"I have seen a lot of tank trucks, but I have yet to see one as well constructed as yours. The extra middle saddle, the heavy skirting and rear domes, and the piping design are certainly superior to most of the tank units on the market, regardless of price. Considering that we bought on a price basis, not aware of these differences, we consider ourselves very fortunate that you had the best price."

C. E. Bosserman
Metergas Service
Maitland, Florida



**Compare Features! Compare Prices! See why
Dealers Prefer American "Better-Bilt" Tanks!**

American "Better-Bilt" tanks are made of new high-tensile steel and are EXTRA LIGHT WEIGHT. This means bigger pay-loads. We use high-flow style piping, which greatly increases the delivery of LP gas. The convenience and safety of the driver is of vital concern to us. Main shut-off valves are controlled from the driver-side of the truck. Two roomy cabinets are streamlined into rear of truck. Every tank is custom-balanced to the truck it's built for. These are just a few of the many advantages available to you at no extra cost in an American "Better-Bilt" delivery unit.

Write for our low
prices on complete
assemblies — from
1250 to 2000
water-gallon size,
set on your truck,
piped — ready for
service.

Also available at
new lower costs:
new 1954 Fords,
GMC's, Chevrolets,
Dodges and Interna-
tional trucks for
delivery - tank -
mounting. Prices
quoted on request.

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American TANK & MFG. CO.

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JACKSON, MISS. — P. O. Box 2563 • Phone 3-8726
LITTLEFIELD, TEXAS — 306 N. Ripley • P. O. Box 341

Next time you're in Dallas be
sure to visit our modern new
plant and air-conditioned
offices on West Commerce.
You're always welcome!

of the present staff will be continued in their present positions.

"We take great pleasure in welcoming the men and women of Mueller Climatrol into the Worthington family," Mr. Ramsey said. "We are proud to include the distinguished name of Mueller among the divisions of our organization."

The full line of Mueller Climatrol products will continue to be manufactured at Milwaukee, and Worthington will continue to manufacture its air conditioning equipment at Holyoke, Mass., and Decatur, Ala.

Air Conditioner and Heat Exchanger Added to Janitrol Line

Janitrol Division of Surface Combustion Corp. has announced two new products in the firm's line of home comfort equipment. The products are a summer air conditioner and a new heat exchanger, which the manufacturer claims is practically indestructible, for its deluxe winter air conditioner.

The "Dura-tube" heat exchanger is a combination of Janitrol design and

a special process developed by the National Bureau of Standards during World War II. The process protects the exchanger from damage by temperatures up to 1200° F. and from cracking by quick immersion in water while heated to the same temperature. The Dura-tube armored heat also resists destructive combustion gases. It has been successfully used over the last five years in nearly 250,000 individual tubes with no replacements required.

The summer air conditioner, one of the most quiet operating units of its kind, is designed to be connected with existing winter forced air conditioners, utilizing the same duct work. A hermetically sealed compressor allows the unit to be removed completely and a new unit installed in a matter of minutes for easy service. The summer air conditioner will be sold either separately or with the new Dura-tube winter air conditioner in a "Win-Sum Twin" combination. The summer unit is available in three models, 2-ton, 3-ton and 5-ton cooling capacity units.

Widely-Used Standard Revision Announced

American Standards Association has just revised and supplemented one of the most widely-used steel pipe flanges and flanged fittings, B16.5, because of new materials recently developed in this field, it was announced recently by Vice Admiral George F. Hussey Jr., managing director. The revision provides for 15 different types of steel, and it covers nominal pressures of 150, 300, 400, 600, 900, 1500 and 2500 psi, and includes references to valves.

"This standard now provides a method for rating materials so recorded that it will be possible to give all new materials developed in the future the proper pressure-temperature ratings. This will solve many of industry's headaches before they occur," Admiral Hussey stated.

In the standard, other new data are the designation of drain locations on valves and specifications for threaded socket-welded, and butt-welded drain connections, and for the diameter of bosses for drains.

The new standard is the result of more than three years' work by Sectional Committee B16, on Pipe Flanges and Fittings, organized in 1920 under the procedure of the American Standards Association. The committee is jointly sponsored by the American Society of Mechanical Engineers, the Manufacturers' Stand-

Carter

Butane Propane

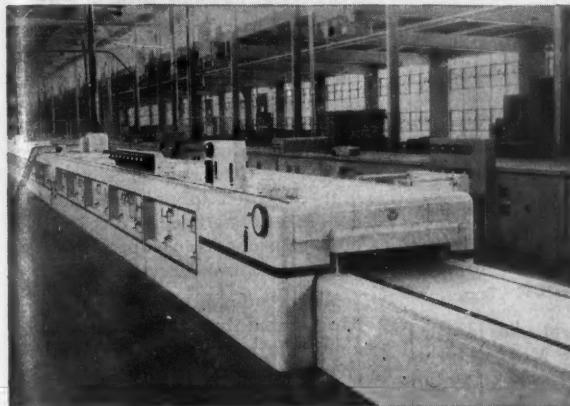


Carter

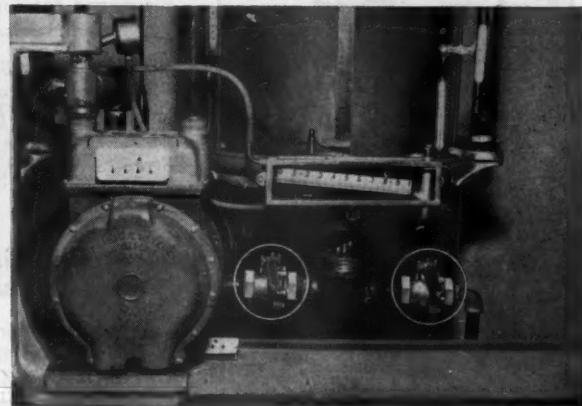
When you buy LP-Gas from Carter,
you have the assurance of high quality
and dependable service. Years of experience
in producing and marketing LPG make
Carter an unexcelled supplier.

THE CARTER OIL COMPANY
TULSA, OKLAHOMA

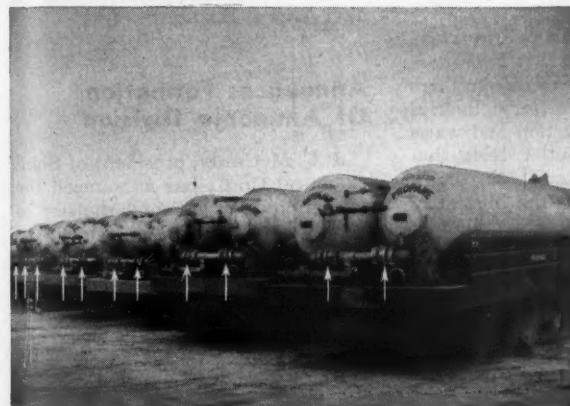
Do you need a LEAKPROOF VALVE?



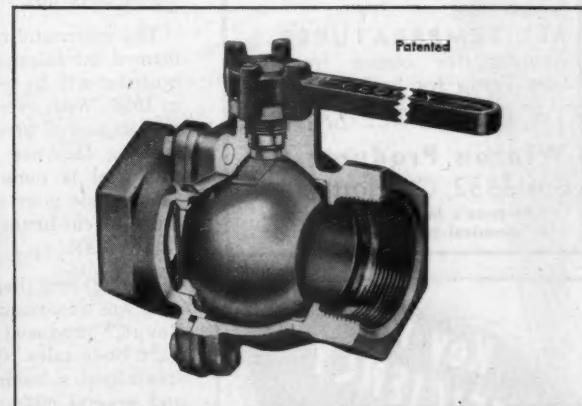
Leakproof in a Bakery where escaping gas and gas odor are a hazard. Rockwood Ball Valves, used in the ovens above, hold tight despite adjustment at various times to control flow of natural gas.



Leakproof on Air Lines Testing Gas Meters. Rockwood Ball Valves, used on air lines above, are opened and closed 1000 times a day, have completed two years' service without leakage, without maintenance.



Leakproof on LP Gas Trucks where flammable bottled gas must not escape. Rockwood Ball Valves, used on trucks above, prove not only leakproof but longer wearing at less cost. Fleet operator praises them.



Leakproof for a Longer Time. Rockwood Ball Valves are designed to operate under the roughest and most galling of conditions. They pay for themselves over and over wherever they are in service.

Note these other exclusive features!

Full Round Flow — assuring fast, efficient operation, less friction loss.

Quick Opening and Closing — needs only $\frac{1}{4}$ turn even under full pressure.

Resists Wear Longer — Chrome-plated bronze ball stands up under abrasion, pitting and scratching.

Rockwood Ball Valves are used in all types of applications throughout the petroleum field. Perform with trouble-free continuity. Longer time between replacements, less maintenance on the job. Comes in all pipe sizes. Tested and listed by Underwriters' Laboratories, Inc. The coupon will bring you complete information.



ROCKWOOD
SPRINKLER COMPANY
82 Harlow Street, Worcester 5, Mass.

Send me illustrated folder V-4 on Rockwood Full-Flow Ball Valves.

Name.....

Title.....

Company.....

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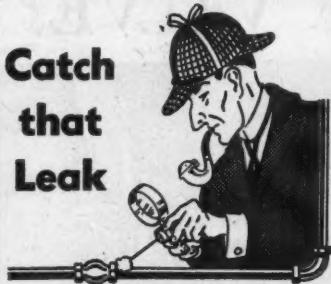
Zone..... State.....

ROCKWOOD

THE FLOW IS AS ROUND AS THE PIPE ITSELF

FULL-FLOW BALL VALVES

Catch that Leak



Use SHERLOCK

5-Second Leak Detector
Used By More Than
4000 Gas Companies

CONVENIENT . . . 4 oz. bottle
with dauber cap fits hand tool
kit. No mixing. No waste.

SAVES MONEY . . . Reduces
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Saves time.

ALL TEMPERATURES . . .
Regular for above freezing.
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Try It . . . FREE SAMPLE

Winton Products Co.
Box 3332, Charlotte, N. C.
(America's largest manufacturer
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BARBER slotted-cap JET

Barber Burners equipped
with the famous Barber
"slotted-cap" jets are
available in round, ob-
long, and square shapes
with inputs of 7000 to
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ardization Society of the Valve and
Fittings Industry, and the Heating,
Piping and Air Conditioning Contractors
National Association.

*The American Standard, Steel Pipe
Flanges and Fittings, B16.5-1953, may
be obtained from the American Standards
Association Inc., 70 East 45th
Street, New York 17, N. Y., at \$3.00
a copy.*

Butler Optimistic About 1954 Sales Outlook

At their first general sales meeting
in five years Butler Manufacturing
Co. officials at Kansas City an-
nounced to their oil equipment sales-
men that the oil industry is off to a
good start in 1954 and by the year's
end should have tabbed a 4% in-
crease over last year.

The optimistic management in-
formed the salesmen that 10% more
business will be expected from them
in 1954. With even better deliveries
and improved production and ware-
housing facilities Butler feels that
this goal is none too high, even
though last year was the biggest in
their 53-year history (\$49.7 million in
shipments).

Highlighting the three-day confer-
ence was a two-hour "Butler Product
Revue," produced with an eye to-
ward tie-in sales. One hundred sixty
specialized salesmen from 42 states
and several cities in Canada saw
every type of Butler product, includ-
ing a 20- by 70-ft steel building, tall
grain and oil storage tanks, and big
oil and gas tank trucks and trailers.

Suburban Propane Designs Civil Defense "Food Wagon"

Suburban Propane Gas Corp.,
Whippany, N. J., provided technical
advice, blue prints, specifications,
propane and propane equipment for
the Salvation Army Civil Defense
Food Wagon which was presented to
New York City, Feb. 16. This mobile
unit, designed to prepare 1500 hot
meals, has storage capacity for
enough propane to supply 36 to 48
hours of continuous cooking.

Mark Anton, president of the com-
pany, stated that its 75 district offices
along the east coast have been in-
structed to cooperate with the civil
defense and the Salvation Army in
their attempt to design adequate
emergency equipment. A much
smaller unit was recently completed
in the Civil Defense Administration
Test Area at Hartford.

Announces Formation Of Ammonia Division

R. C. McCurdy, president of Shell
Chemical Corp., has announced the
formation of an ammonia division to
handle the manufacture, distribution
and sale of anhydrous ammonia and
ammonium sulfate to agriculture and
industry.

G. R. Monkhouse will be vice presi-
dent of the new division. L. M. Rob-
erts, as operations manager in charge
of manufacturing, distribution and
marketing-engineering, will take
charge of the ammonia plants in Pitts-
burgh and Ventura, Calif. V. C.
Irvine will be sales manager.



Top oil equipment salesman, Frank G. Royster (left), receives from Glenn Speakman, vice president in charge of sales, a silver cup designating him honorary vice president of the "Butler Cup Club." Others are (l. to r.): Oscar Nelson, president; Harold Edlund, general sales manager; and John Morgan, general manager.

Manufacturers of Tanks and Steel Products

3301 SOUTH LAMAR STREET

TRINITY STEEL COMPANY INC.
EVEREADY GAS SYSTEMS
C. J. BENDER
DALLAS, TEXAS

TELEPHONE HUNTER-8331

April 1, 1954

YOUR GAS COMPANY
221 on Easy Street
Anytown, USA

Gentlemen:

We are taking this opportunity to make advance announcement of the most revolutionary improvement that has ever been made in the LPG truck tank field.

Effective with deliveries this month - April - the New #106 Model Trinity Twin Unit is even newer offering EXCLUSIVE features positively not found in any other and improvements have not added a penny more to your cost.

Trinity engineers ... through careful analysis and design ... have at last developed what we believe is the "Perfect" unit ... which will save you many costly repairs and offers you the most beautiful and perfectly balanced unit available today. Development - naturally - has been in secret ... but we are ready to make deliveries ... so you may call - write or wire now for advance pictures, prices and specifications, before our general announcement is made.

You'll be well pleased with what you find in the great NEW "Perfect" Trinity Truck Tank Unit and we here at Trinity will be proud to rush complete details promptly. Write, wire or phone now.

Expectantly yours,
TRINITY STEEL COMPANY, Inc.

C. J. Bender
C. J. Bender
President

CJB/F



APRIL, 1954

P.S. other Models
will be offered
shortly with these
"Exclusive" features
too.—



A. P. Tappan (l.), president of Tappan Stove Co., congratulates J. Eugene Dunaway Jr. (r.) who shares first place territory honors with W. F. Dunaway (l.), holding the winner's trophy. C. C. Wilson (r.) holds the trophy he won as top district manager.

"Top Ten" Sales Winners Announced by Tappan

A. B. Ritzenthaler, vice president in charge of sales for Tappan Stove Co., announced the 14 winners in the company's 1953 "Top Ten" sales contest at a banquet held recently in Mansfield, Ohio.

Top honors for district manager went to C. C. Wilson, who supervises the north central division, including Indiana, Illinois, Michigan, Wisconsin and Minnesota. First place among the territory managers went to J. Eugene Dunaway Jr. and W. F. Dunaway, a brother team from Detroit.

Other territory managers who placed among the "Top Ten" are: L. A. Carducci, of Fort Lee, N. J., second place winner; D. L. Shelley, Charlotte, N. C., third; R. R. Myers and J. W. Phillips, Cleveland, fourth; C. R. Aungst and E. C. Greene, Chicago, fifth; S. A. Hanner, Shreveport, La., sixth; D. J. Thomas, Buffalo, N. Y., seventh; C. A. Rogers, Little Rock, Ark., eighth; K. E. Weller, Washington, Penna., ninth; and R. B. Davis, New York City, tenth.

Second among the district managers was C. A. Pridham, Newark, N. J. A. L. Smith, Mansfield, Ohio, took third place honors.

Ansul Chemical Co. Holds Fire Training Schools

A record number of 11 industrial Fire Training Schools—the first starting May 24 and the last starting Sept. 20—will be held during 1954 on the fire test field of the Ansul Chemical Co., Marinette, Wis.

Each school will last three days, the starting dates being May 24; June 14, 21, 28; July 19, 26; Aug. 16, 23, 30; Sept. 13, 20.

The school is held for the purpose of training plant fire marshals, safety directors, fire brigade leaders, and military and municipal fire suppression officers in the latest techniques of extinguishing fires with dry chemicals. The students then return home better equipped to train personnel under them.

Registration is limited to 25 men for each school, with reservations accepted on a first-come, first-served basis.

EASY WAY.

RHT, 17 1/2" long

RUT, 32 3/4" long, with home-made fixture for preheating

TO SWELL YOUR FUEL LOAD

Sell RANSOME RHT and RUT Torches to—

Machine shops
Sheet metal shops
Oil fields
Farmers and ranchers
Garages
Factories
Slaughter houses
Public utilities
Public works departments

for

Melting lead, babbitt and white metal
Pipe bending
Preheating
General heating and thawing
Fender repairs
Singeing
Weed burning and flame cultivating
Disinfecting poultry houses, dairy barns and swimming pools

These heavy-duty torches, for jobs requiring large, intense flames, are real load builders. RUT burns 1 gal. in 50 mins. at 10 lbs. pressure; RHT, 1 gal. in 90 mins. That's more than most floor furnaces... and it's not confined to cold weather. Most RANSOME torch users buy LP-Gas the year round, often in small, premium-priced containers.

You can sell RUT and RHT torches for hand or fixture use... and with trigger valve for intermittent work. They're good repeaters—several dealers have sold 100 to 200 in a year!! Single users frequently buy several torches... and every torch helps build your fuel load.

Cash in NOW. Write TODAY for price list, discounts and catalog.

RANSOME COMPANY

Liquified Petroleum Gas Division

ROOM A-4 • 4030 HOLLIS STREET • EMERYVILLE, CALIF.

36

Ransome

**"If our executives
did not read
BUSINESS
PUBLICATIONS
I'd consider them
unfit for their jobs"**

*Col. Willard F. Rockwell,
Chairman of the Board,
Rockwell Manufacturing Company*



"We feel the same way about our sales managers," Colonel Rockwell continues. "We expect them to know what is being printed in the business publications and to guide themselves accordingly. Further, we ask our salesmen to keep our home office informed about the comments of our customers on business periodicals."

Like Colonel Rockwell, other business and profes-

sional leaders the country over are reading business publications covering their fields of activity. They are getting from these magazines vital information about new products, new methods, new marketing trends, price and distribution changes through the advertising as well as the editorial pages. The Business Press offers a direct route to anyone who has anything to sell to business and professional men.



For a United Business Press

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The national association of publishers of 161 technical, professional, scientific, industrial, merchandising and marketing magazines, having a combined circulation of 3,524,478 ...audited by either the Audit Bureau of Circulations or Controlled Circulation Audit, Inc....serving and promoting the Business

Press of America...bringing thousands of pages of specialized know-how and advertising to the men who make decisions in the businesses, industries, sciences and professions...pinpointing your audience in the market of your choice. Write for complete list of NBP publications.

Remodeling Booms Market For Gas Room Heaters

Twenty-one million homes past the age of 30 have been voted the prime target of the gas room heating equipment industry in 1954.

A record number of exhibitors, meeting at the midwinter home furnishings market in Chicago as a division of the Gas Appliance Manufacturers Association, heard T. D. Bromley, chairman of the group, predict that sales of non-central gas heating equipment this year will exceed

those of 1953 which totaled more than 1.6 million units.

"More money will be spent this year on rejuvenating old homes than on new housing starts," Mr. Bromley said. "This will mean a greater need than ever before for individual space heaters to heat added wings, expanded attics, nurseries, play rooms, and work shops and to supplement existing central heating systems."

The war on obsolescence in millions of American homes, schools, plants and offices, according to the GAMA official, already has replaced the "shooting" war as a stimulant

to all home service industries. As a result, he said, manufacturers of gas heating equipment, many of whom were engaged in defense production, are girding for their "biggest year" of civilian production.

Youngreen Sells Sequoia Gas Co.



Gene Youngreen

McWhorter.

Gene Youngreen, Fortuna, Calif., who is a member of the Western Liquid Gas Association, and well known to the trade on the Pacific Coast, has sold his interest in the Sequoia Gas Co., Fortuna, to B. A.

A MAINE LP DEALER TELLS WHY HE SELLS CALORIC GAS RANGES



Paul A. McGillicuddy
70 Bangor St.
Houlton, Maine

"It's Easier to Sell the Caloric Gas Range Because It's Backed by the Industry's Biggest Advertising Program"

Unmatched is the word for the Caloric advertising program! For the last 8 years no other gas range manufacturer has given dealers such extensive national advertising support. And this mammoth program is only one reason why dealers like selling Caloric ranges. Here are some others.

New Liberalized Floor Plan... enables dealer to carry a representative Caloric line with minimum cash outlay.

Dynamic Merchandising Program... promotional helps and a point of sale program make the most of Caloric features. **Direct Factory Buying...** gives a dealer full mark-up, bigger profit.

52 Warehouses... located throughout the country, these warehouses assure

faster delivery, speedier service, no parts problems and minimum inventory for maximum sales. You stock only a representative line—sell directly out of Caloric Warehouses.

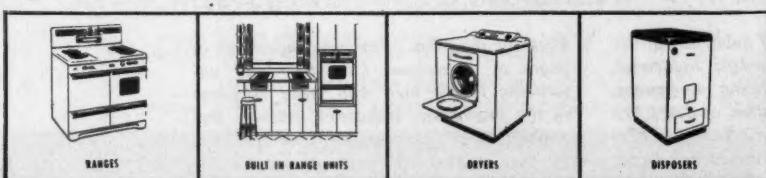
One Pricing Policy... always the same for every dealer—our best deal for you every time you buy.

Diana Lucas... Gas cooking TV show . . . half-hour shows in more than 30 markets—a national TV star selling Caloric for you.

Caloric Value... Caloric automatic gas ranges, like Caloric built-in ranges, automatic gas dryers and automatic gas disposers, are built to give your customers full value—and to give you full service-free profit.

MAKE SURE YOU SELL CALORIC GAS APPLIANCES • FOR COMPLETE INFORMATION, CHECK YOUR CALORIC REPRESENTATIVE

Caloric® CALORIC STOVE CORPORATION, TOPTON, PA.



"Code of Ethics" Campaign Launched by Gas Men

An advertising campaign to promote recognition of its recently adopted "Code of Ethics Seal" as a hallmark of quality workmanship has been launched by the Industrial Equipment division of the Gas Appliance Manufacturers Association.

Advertisements will appear in a wide variety of trade publications serving the major industries which use gas burning equipment in more than 26,000 different processes, according to Fred C. Schaefer, chairman of the GAMA division. Some of the ads will be sponsored by the industrial division, while others will appear over the signature of individual manufacturer members.

All of the 31 manufacturers authorized to use the seal on their products and in their advertising are being urged to give the greatest possible advertising support to the campaign.

Union Petroleum Opens Headquarters in Tulsa

Union Petroleum Corp. has been formed with headquarters in the Daniel Bldg., Tulsa. They will engage in the marketing of L. P. gases and natural gasoline. Walter W. Nixon, president of the company, has been associated with the marketing division of Warren Petroleum Corp. for the past five years.

Service School Held at University of Michigan

The annual liquefied petroleum gas service school was held March 22-24 at the University of Minnesota's St. Paul campus, according to J. O. Christianson, director of short courses.

Leading university and industry specialists demonstrated, lectured and conducted question-and-answer sessions. The school was held in cooperation with the Liquefied Petroleum Gas Association Inc., National Butane-Propane Association, Minnesota Petroleum Gas Association and others.

Courses included domestic controls, venting of gas appliances, safety in use of L. P. gas, use of L. P. gas as a motor fuel, L. P. gas controls for heating, leak detection and pipe sizing and customer relations.

Max Ilfeld Sells Interest in Ilfeld Hardware of Taos

Max Ilfeld, a partner with Saul Harberg in the Ilfeld Hardware & Furniture Co., Taos, N. M., retired on Jan. 1 from the business that he had been associated with since 1935. Under the new setup, Mr. Harberg will retain 50% share in the company with Rolf R. Beier and Jimmie Reynolds each assuming a one-fourth interest.

The company recently purchased a new International 1340-gal. dual tank truck, which makes it possible for it to service its gas customers on a 24-hour day, 7-day week basis.

National Council Appoints Ten New Members

The appointment of ten new members to the National Council for LP-Gas Promotion by the Gas Appliance Manufacturers Association and Natural Gasoline Association of America was announced recently by James E. Pew, chairman of the council.

The GAMA representatives, named by Sheldon Coleman, president of the association, are: F. A. Kaiser, vice president, Detroit-Michigan Stove Co.; James Donnelly, vice president, Servel Inc.; A. B. Ritzenthaler, vice president, The Tappan Stove Co.; C. L. Burrows, vice president, The Coleman Co.; and John W. Christensen, promotion manager, Hamilton Manufacturing Co.

NGAA appointees, chosen by President Frank Perry, are John F. Lynch, president, La Gloria Corp.; Leo J. Wilmeth, general sales manager,

Shamrock Oil & Gas Corp.; Joe Miller, coordinator of products, Humble Oil & Refining Co.; G. L. Brennan, vice president, Warren Petroleum Corp., and E. A. Jamison, L. P. gas sales manager, Gulf Oil Corp.

The new members were named in keeping with a recent re-apportionment of association representation on the council (formerly known as the National Committee for LP-Gas Promotion) and to fill certain other vacancies. The group directs the National LP-Gas Promotional Program, which is co-sponsored by NGAA,

GAMA and the Liquefied Petroleum Gas Association.

Members of the council's newly created executive committee, headed by K. R. D. Wolfe, vice president, Fisher Governor Co., were also announced. They are George P. Bunn, manager of the natural gas and natural gasoline department, Phillips Petroleum Co.; Julius Klein, president, Caloric Stove Corp.; Herman Merker, president, Pressed Steel Tank Co.; M. L. Trotter, president of LPGA and Carolina Butane Gas Co.; Charles O. Russell, president, Rapid-

KENTUCKY LP DEALER TELLS WHY HE SELLS CALORIC GAS DRYERS



W. H. Crawford

W. H. Crawford
Farmer's Supply Company
Lexington, Kentucky



"The best lint trap in existence gives the Caloric gas dryer plus value for housewives"

Caloric's new nylon "Sifto-Bag" represents a dramatic new improvement in lint trap construction. And it's exclusive with Caloric. Since it traps even the finest lint, you can be just as sure as W. H. Crawford that the "Sifto-Bag" makes the Caloric dryer America's easiest to demonstrate and sell.

This outstanding quality dryer has lots of other features that mean "Plus" value to homemakers. Here are a few:

LO-HEAT . . . HI-BREEZE . . . the exclusive principle that speeds up drying, fluffs up wash, cuts down costs.

MAKE SURE YOU SELL CALORIC GAS APPLIANCES • FOR COMPLETE INFORMATION, CHECK YOUR

One-knob control. Housewife sets just one dial for completely automatic operation. Bell rings when drying's done. Dryer shuts off automatically.

High level air-intake. Supplies clean air, doesn't pick up dirt and dust from floor.

Sturdy drop-door . . . designed for easy loading and unloading from either side.

Pre-heated air speeds up drying, cuts fuel cost.

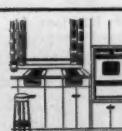
Choice of three-way moisture exhaust.

CALORIC REPRESENTATIVE

Caloric® CALORIC STOVE CORPORATION, TOPTON, PA.



RANGES



BUILT IN RANGE UNITS



DRYERS



DISPOSERS

Thermogas Co.; and A. H. Cote, manager of operations for Suburban Propane Gas Corp. The committee held its first meeting Feb. 19 in Chicago.

Sinclair's Open House Draws 400 to Tulsa Office

More than 400 invited guests were on hand for the open house recently held by Sinclair Oil Corp. to show off the company's new six-story home office in Tulsa, Okla. The handsome new structure is located at 10th St. and Boston Ave., and represents an investment of \$4 million.



On behalf of the Academy of Color and Design, Eleanor Holm presents their national trophy to Hubert Tappan, vice

president, Tappan Stove Co., "In recognition of outstanding beauty of design of the Tappan range," at the organization's Annual Award Dinner recently held in Las Vegas. Edwin Bathke, (left), executive secretary of the academy, aids in the presentation. Originated in 1950, the Academy of Color and Design each year presents the award to a manufacturer for outstanding contribution in the field of color and/or design of their products.

New LPG Firm

The Wagner L. P. Gas Service has recently been organized on the east shore of Lake Beulah, near East Troy, Wis., to serve customers of this area who were formerly handled by Natural L. P. Gas Corp.

GAMA Votes Membership To Five Firms

Five new members have joined the Gas Appliance Manufacturers Association. They are:

Control Engineering Corp., Norwood, Mass., who will manufacture a combination automatic pilot and gas control valve.

United States Stove Co., South Pittsburg, Tenn., makers of vented and unvented domestic room heaters and unvented wall heaters.

General Manufacturing and Distributing Co., Quincy, Mich. They are developing a gas water heater.

Waterfilm Boilers Inc., Jersey City, N. J., manufacturers of gas-fired boilers.

The Pittsburgh Water Heater Co. of California, San Francisco, who plan to make a gas water heater.

LPG Highway Ad Service

Development of a new uniform highway advertising program which will enable LPG dealers and distributors to keep their company names and the LPG industry emblem constantly before the public is now available through the National Advertising Co., Waukesha, Wis. The service is offered on a convenient monthly rental plan. The outdoor advertising displays were developed in cooperation with the National Committee for LPG Promotion.

Largest Underground Cavern Built for Sinclair

An underground cavern, largest man-made structure of its kind in the Southwest is being built for Sinclair Oil and Gas Co., near Lima, Okla.

When completed, the gigantic underground space will be used to store upwards of 4,250,000 gal. of LPG.

WAY OUT IN FRONT IMPERIAL TUBE WORKING TOOLS

... their quality speeds your work

These outstanding tube working tools make it easy to do faster and better cutting, flaring, bending, reaming, and refacing. They are built to the quality standards which for years have made Imperial Tools the overwhelming favorites for tubing work. For safety in every installation depend on Imperial Tubing Tools.



Hi-Duty
TUBE CUTTER

Free wheeling ball bearing action. Roller type with flare cut-off groove. Retractable reamer. No. 274-F for $\frac{1}{8}$ " to 1" O.D. tubing. Also other models and sizes.



Hi-Duty FLARING TOOL

Speedy single-nut clamping. Makes precision S.A.E. flares faster and better. No. 300-F flares $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " O.D. tubing. Many other models and sizes to choose from.

Catalog No. 621 describes Imperial LP-Gas Fittings, Tube Working Tools, Brass Pipe Fittings and Shut-off Valves. Ask for your copy.



LP-GAS FITTINGS

For safety's sake use the best in fittings—insist on Imperial Flared Tube Fittings. Broad line. Listed by Underwriters' Laboratories, Inc.



VALVES

Imperial also offers an outstanding line of shut-off valves for multiple type LP-Gas installations.

THE IMPERIAL BRASS MFG. CO., 1210 W. Harrison St., Chicago 7, Illinois

IMPERIAL

FITTINGS · VALVES · CONNECTORS
TOOLS for cutting, flaring, bending
and swaging.

holly *NarrowWall*

PROMOTES PROFITS 3 WAYS —



1. Easy to Install.
2. Service-Free Operation.
3. Increases Gas Sales thru satisfied users.

holly NarrowWall stands out among all other recessed heaters because it gives *extra* warm air. All air heated and circulated by Holly's patented Secondary Heat Exchanger* (Pat. 2602441) originates from floor level.

Holly's *S-H-E also assures maximum operating efficiency.

"Specify S-H-E
for L-P-G"

See us at Booth #170, National Convention of I.P.G.A., Conrad Hilton Hotel, Chicago, May 9-12.



AGA approved under American Standards for Central Heating Gas Appliances.

HOLLY MANUFACTURING COMPANY

Mfr. of Famous Stabby Floor Furnaces

917 S. Arroyo Parkway, Pasadena 2, Calif.



PROPANE TRUCK TANKS FOR ALL DELIVERY NEEDS

In streamline (illustrated) and walkway types, 1,181 gal. to 1,700 gal. water capacities. Constructed in accordance with A.S.M.E. Code, par. U-69, 200# w.p., or A.S.M.E. Code, 1950 edition, 250# w.p. Mounted on your chassis complete with valves, fittings, pump, hoses. Unit ready for immediate use when picked up. Write for details.

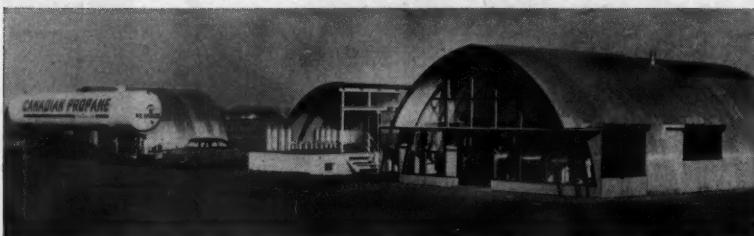
Also 500 gal. and 1,000 gal. Domestic Tanks (Salem System)

Storage Tanks
Up to 8,000 gals.



McNAMAR AND CROWLEY, INC.
SALEM 5, ILLINOIS

Canadian Propane Is Growing Up



The new modern plant recently completed at Ponoka, Alta., testifies to the rapid growth of Canadian Propane Ltd.

The New VIKING LP-GAS UNIT

Just The PUMP For Fueling
TRACTORS • BUSES • TRUCKS
TAXI CABS • CARS



See the complete
Viking LP-Gas pump
line at Booth 176, Na-
tional L.P.G.A. Convention,
Conrad Hilton Hotel, Chicago,
May 9, 10, 11 and 12, 1954.

A complete unit ready to use. Pump, by-pass valve, relief valve, coupling, 1750 rpm motor, built-in switch and voltage changer all mounted on welded steel base.

Coupled with pump features that make it outstanding . . . mechanical seal, O-ring gasket, non-lubricated inner bearing and radial thrust bearing on pump shaft.



Send today for
complete information
and prices. Ask for
bulletin A2300B.



VIKING

PUMP COMPANY
Cedar Falls, Iowa

Canadian Propane Ltd., after only seven years in the field of liquefied petroleum gas, has expanded to include nine branches and a transport division.

The newest acquisition of the company is Williams Propane Ltd., located in Prince George, B. C. Williams will be operated under the name British Canadian Propane Ltd. and managed by Mel Sumner.

This is the second venture of Canadian Propane into British Columbia. They recently opened a new distribution plant at Dawson Creek, which, with Williams, makes a total of nine branches in all for the company—seven in Alberta and two in British Columbia.

The new modern \$85,000 plant at Dawson Creek and the \$70,000 plant recently completed at Ponoka, Alta., both testify to the fact that Canadian Propane is growing up.

The company may well boast of its growth and expansion. Founded as a private company in 1947, Canadian Propane in 1950 changed the statutes from those of a private company to a public company with a capitalization of 500,000 shares; 1953 saw the increase in capitalization to 2 million shares.

The company's plants are operated as separate subsidiaries, but controlled by the mother company. Modern in every way, each of these branches has a warehouse with a showroom, a bottling house, large storage tanks and sufficient garage space. Each carries a complete line of propane merchandise for immediate distribution to dealers throughout the territory.

Every plant is equipped with company cars, trucks and propane delivery tankers. A common sight in the northern parts of British Columbia, Alberta, and Saskatchewan is the red and yellow Canadian Propane truck or tanker, since each plant services an area of approximately 75 miles in radius.

The staff of each of the nine branches includes a branch manager, serviceman, installation man, salesman, and a propane delivery man. "Each of these must have a thorough knowledge of the propane industry," says Gordon McLean, president of Canadian Propane.

In addition to its nine subsidiaries, the company owns, controls and operates what is known as the Canadian Propane Transport Ltd. With transport tankers this company takes care of deliveries to each point of operation.

On the outskirts of Edmonton, Alta., location of the head office, Canadian Propane has established a gar-

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age capable of servicing six large transports at a time. This garage carries the complete stock of propane carburetion for the company and has an experienced propane carburetion man in charge of installations and sales.

A young and growing concern even now, Canadian Propane's policy is to expand further when the directors feel that they have the properly trained personnel to warrant such growth.

565,557 Cylinders in Six-Month Period

An LPGA analysis of statistics released by the U. S. Bureau of Explosives reveals that 565,557 L. P. gas cylinders were produced in the six-month period from May 15 to Nov. 14, 1953. The breakdown according to size is as follows:

Specification	4BA and 4B— 240 Psi	Volume in Lbs Water Capacity
(a) 45 lb to 118,209	lb.....	
(b) 135 lb to 3,884	lb.....	
(c) 230 lb to 391,342	lb.....	
(d) 340 lb to 9,033	lb.....	
(e) 680 lb to 13,408	lb.....	
(f) All other sizes.....	29,681	
Total.....	565,557	

Lamson L. P. Gas Sold To Metrogas Inc.

W. Lamson, owner and operator of the Lamson L. P. Gas and Appliance Service at New Holstein, Wis., announced recently that he has sold his business to Metrogas Inc., Chicago.



Novel use of LPG is demonstrated by H. G. Bomhoff, a farmer near El Reno, Okla., who has manufactured a miniature threshing machine steam engine. Butane gas fires the boiler of the 32-in. engine.

Want to give service that sells?



Do it FAST with RCA 2-Way Radio!

—says C. J. McAllister,
Vice President
and General Manager,
The Parlett Gas Company

"A customer phones in an 'O-G' report, or a request for quick service. Our truck drives up to the door in a surprisingly short time . . . sometimes less than 10 minutes. And when the customer acts enthusiastic about our speedy response, we know we have formed a lasting good impression," reports Mr. McAllister, Vice President and General Manager of one of Maryland's largest LP-gas operations.

"That good impression spreads to neighbors," he continues. "It gives us the best kind of advertising we can get—often leads to new, unsolicited customers. Even our appliance salesmen use 'rapid service' as a point in closing sales.

"Primarily, of course, RCA 2-Way Radio has been a great man-hour and mileage saver," Mr. McAllister adds. "We normally use a pre-scheduled trip-ticket arrangement. About 90% of the time we could not locate drivers for rerouting after they had gotten out into

the rural areas. RCA 2-Way Radio has resulted in far superior utilization of man-power with a substantial cut in the overtime needed to complete a day's work. We have less backtracking . . . less wear and tear every month."

In actual performance, RCA 2-Way Radio proved itself in this installation as it has in many others. Antennas on the roofs of the Parlett offices enable RCA communication equipment to reach vehicles 30 miles away, in every direction. Coverage is excellent over the entire operating area.

Do It best with RCA 2-way radio
Easy to use as your telephone • Compact
—takes no more space than a spare tire
• Tough—stands rough treatment in service
• Reliable—engineered by world leaders in radio • Practical—low-cost operation.

And remember, nationwide facilities are provided by the RCA Service Company. For further details mail the coupon below.

Radio Corporation of America, Communications Equipment
Dept. D204, Building 15-1, Camden, N. J.

Please send me your free bulletin, "15-Minute Service When You Need It."

NAME _____ TITLE _____

COMPANY _____ ADDRESS _____

CITY _____ ZONE _____ STATE _____

Have an RCA Communications Specialist get in touch with me.

RCA **RADIO CORPORATION of AMERICA**
COMMUNICATIONS EQUIPMENT

CAMDEN, N. J.

NATURAL GAS STANDBY



BY DRAKETOWN

This packaged propane plant designed, engineered and built by Draketown, provides a completely interchangeable fuel for natural gas.

Draketown can design and build one for you, within your budget, to take over all or part of your load at the turn of a valve.

**STANDBY
AUGMENTATION
100% TOWN OR PLANT SUPPLY**

Serving utility and industry for over thirty years

DRAKE & TOWNSEND

CONSULTING • DESIGN • ENGINEERING • CONSTRUCTION
11 WEST 42ND STREET • NEW YORK 36, N.Y.

An Efficient Specialized Service

for the

LP-Gas Industry

One of the Midwest's Finest Stocks of

Brass Fittings

Copper Tubing

Tools for Tubing

Valves and Cocks

Orifices and Kits

Prompt Shipment
Write for catalog and full details



**Keep Up
with L.P. Gas
Developments
Every Month**

BUTANE-PROPANE News

B-P News brings you Facts, New Ideas, New Methods, News and Reports. You'll want to read every chapter in the Safety Series. Don't miss an issue!

SUBSCRIBE TODAY

Subscription Order

BUTANE-PROPANE NEWS • 198 S. Alvarado St., Los Angeles 57, Calif.

Start my B-P News subscription with the issue

1 Year \$2.00

Payment Enclosed

2 Years \$3.00

Bill Me

(Add \$2.00 per year foreign postage outside of U.S.A., Canada, & So. America)

NAME _____

MAIL ADDRESS _____

CITY _____

ZONE STATE _____

My connection with the LP-Gas industry is _____

South Dade Gas Corp. Opens Business in Miami

South Dade Gas Corp. has opened for business in south Miami, to sell and service L. P. gas and appliances. The store is the newest unit in the Dade Gas Corp. family which has storage plants and affiliated retail outlets in Miami, Ft. Lauderdale and Hollywood.

William Weiner, who has been associated with County Gas Utilities Inc., Liberty, N. Y., since 1933, is manager and part-owner of the new store. Other owners include Sid Langer, Jack Weiner and Sid Weiner of Dade Gas Corp.

Eveready Distributing Co. Opens L. P. Gas Exchange

Eveready Distributing Co., Oklahoma, recently opened an L. P. gas bottling exchange and warehouse in Tulsa. Similar operations have been started by the company at El Reno, Oklahoma and Ft. Smith, Ark.

Eveready storage tanks, domestic tanks and truck tanks are distributed from each location. E. J. Goins is district manager of the company for the Tulsa area; Lon D. Wilson is in charge at El Reno; and Harlan Wallace at Ft. Smith.

City Gas Service Buys Mix-O-Gas Co.

City Gas Service Inc., Wisconsin Rapids, has purchased the assets of the Mix-O-Gas Co. Inc., Appleton, Wis., and merged its operations with those of City Gas.

This merging of two active companies in the Appleton and Little Chute area has increased their effectiveness because City has a large business in handling gas in bottles, while the Mix-O-Gas Co. has a large bulk business.

Ohio Firm Receives National Recognition

The Fairley Hardware Stores placed second among the "50 Club Winners" of the Shell Oil Co.'s Shel-lane and L. P. gas division for the entire United States. The award was based upon most reliable and consistent service to customers throughout the territory serviced by each Shel-lane distributor.

BUTANE-PROPANE News

For Quick Profits

LET "MRS. AMERICA" HELP YOU SELL ...



... IT'S THE AUTOMATIC GAS-FIRED INCINERATOR!

Cash in NOW on Mrs. America's promotion of Incinor, the proven unit. Over 30 years of dependable daily service in thousands of homes.

Easy to install in either utility room or basement — trouble-free — no service.

Write TODAY for more details!

Approved
by
A.G.A.



INCINERATION DIVISION

BOWSER, INC.

CAIRO, ILLINOIS

The key to more heater sales:

Martin
GAS HEATERS



560



V370

solves the puzzle
of more profits!

8 Fully Vented Heaters

15,000 BTU to 85,000 BTU

All Martin Heaters are
AGA approved for
natural, liquefied, and
manufactured gases.

23 Unvented Heaters

10,000 BTU to 50,000 BTU

Over
49 years stove
experience

MARTIN STAMPING & STOVE CO., Huntsville, Ala.

Founding of Order of Ancient Gassers

Renewing friendships of long standing, reviewing the industry's growing pains and rewarding honest industry efforts are but a few of the purposes of "The Order of Ancient Gassers," an organization being chartered on May 9 at the Conrad Hilton hotel in Chicago.

Any man with a 20 year or more association with the L. P. gas industry is eligible for membership in the organization. Applications should be made to Charles Russell, chairman of the organization committee, at Rapid Thermogas Co., 4509 East 14th Street, Des Moines, Iowa. Applications should set forth qualifications for membership, and include \$15 for a ticket to the cocktail-dinner meeting in Chicago.

Selwyn-Pacific Co. Founded

Announcement was made recently of the merging of the Selwyn-Landers Co. and Pacific International Products Inc.



George Postlewait

The two companies, forming one organization, will be operated under the name Selwyn-Pacific Co.

Selwyn-Landers Co. has been one of the pioneers in the field of L. P. gas valves, regulators and an extensive line of fittings since 1931. Although a newer company, Pacific International has grown rapidly in the past four years.

Principals of both companies felt that a merger of their organizations would enable them to meet the increased demands of manufacturers for better service and a more extensive line of products.

George Postlewait is manager of the company.

Standard Oil Increases Underground Storage

Standard Oil Co. (Ohio) will increase its underground storage space for L. P. gas by 2 1/2 million gal. when it completes blasting for a series of caverns at its Lima, Ohio, refinery.

The estimated cost of the caverns is \$450,000, less than a quarter of the cost of the equivalent amount of storage space above the ground.

ATTEND
 FIFTH ANNUAL MEETING & TRADE SHOW
WESTERN LIQUID GAS ASSOCIATION

★ *Where Buyer Meets Supplier* ★

- **Exhibits of All Kinds.**
- **Subjects of Interest to All LP-Gas Men.**
- **Interesting Speakers.**
- **Exchange of Ideas with Fellow Dealers.**
- **Cruise on San Francisco Bay.**
- **Valuable Door Prizes.**
- **Dancing and Entertainment.**
- **DON'T MISS IT!**

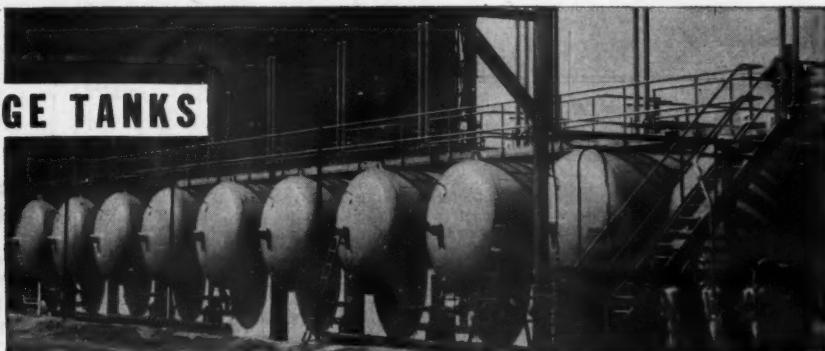


PALACE HOTEL
SAN FRANCISCO **APRIL 9-10**

Join with Dealers who Display this Emblem

**10 OF A FINAL
 INSTALLATION OF 46
 PROPANE STORAGE TANKS**

fabricated by



TANK DIMENSIONS	
18000 GAL TANK	GROSS CAPACITY U. S. GALLONS
15480	APPROX. PROPANE CAPACITY GALLONS (86% OF GROSS)
200	WORKING PRESSURE A.S.M.E. PAR U-69 CODE
94"	INSIDE DIAMETER, INCHES
47'-4"	TANGENT LENGTH
51'-3"	LENGTH INSIDE TO INSIDE OF HEADS
25.4	WEIGHT TONS (APPROX.)
30000 GAL TANK	
	25800
	200
	106"
	62'-6"
	66'-11"
	41.3

Propane Storage Tanks at **DOWNINGTOWN** are electric arc welded construction; welds spot checked with x-ray for 200# W.P., in accordance with Paragraph U-69 of A.S.M.E. Code for Unfired Pressure Vessels—Hydrostatic tested at 400# W.P. or 250# W.P. according to Paragraph U-201 of A.S.M.E. Code and the A.P.I.—A.S.M.E. Code. Construction meets Codes as specified above, National Board of Fire Underwriters and other approval agencies' requirements. We'll be glad to comply with your request for further details.



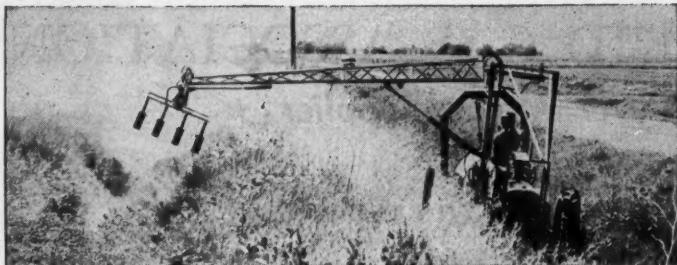
DOWNINGTOWN IRON WORKS, INC.
 DOWNINGTOWN-PENNA.

STEEL AND ALLOY PLATE FABRICATION AND HEAT EXCHANGERS

DIVISION OF
 PRESSURE TANK COMPANY



Builds Steady Summer Fuel Sales

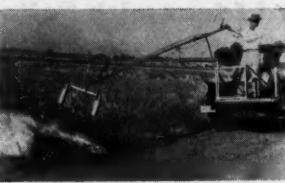


Agri-Quip Ditch Bank Weed Burners consume up to 100 gals. of L. P. gas per hour. Kill weeds — control brush — leave ditch banks clean — preserve sod — clean fence-rows — kill insects and eggs. No. 80 mounts on any standard tractor; one-man operated. No. 40 operates from any pick-up, truck or trailer. No. 20-25 H is hand flame thrower throwing 6 to 12 ft. flame.

Make profits by operating or selling Agri-Quip units. For information write or wire.



Manufactured by
AGRICULTURAL EQUIP. CORP.
P. O. Box 200 La Junta, Colorado



No. 40 with Universal Mount for Trucks

New Hand Type Flame Thrower



Gas Range Shipments Continue To Climb

Shipments of domestic gas ranges during January increased by 6200 units over the previous month, according to the Gas Appliance Manufacturers Association.

Edward R. Martin, GAMA's director of marketing and statistics, reported that revised estimates of shipments for the entire year of 1953 total 2,181,300 units, a gain of 5900 over the 2,175,400 gas ranges shipped during 1952.

During January, 138,600 units were shipped to distributors and dealers, as compared with an estimated 132,400 during December. Shipments in January of 1953 amounted to 169,200 units.

Hail 1954 Roper Line

"The finest, most complete line of products ever to bear the Roper name," was announced recently by the George D. Roper Corp., appliance manufacturer in Rockford, Ill.

Nearly \$1 million has been invested in superior styling, advanced engineering, and new tools and dies. From this program have come Roper gas ranges, "Dry-Aire" gas clothes dryers and "arRANGEable" gas cooking units that are unmatched anywhere for beauty, convenience and performance.

Cylinder Trucks Cut Delivery Costs!



The M/W trade mark signifies the cylinder truck is made by the world's oldest and original manufacturer of trucks for handling LPG cylinders.

Standard cylinder truck shown at left is available with size 10 x 2.75 tires in two types.

Air Tires.....\$19.25
Semi-pneumatic.....\$18.20

WRITE FOR
COMPLETE CATALOG

Trucks also available for handling large 400 pound bulk cylinder. Write for illustrated literature and prices.

★ ★ ★

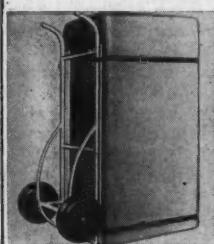
Appliance Truck
Model 229

The safe, sure way to move heavy appliances. Large 12" air tires prevent damage to linoleum or varnished floors. Truck provides safe way to move heavy appliances up or down stairs. Price with two 12 ft. web straps \$47.60

ALL TRUCKS MFG. BY



Pneumatics are featured on M/W trucks.



Moellenbrock & Wilke

WASHINGTON, MISSOURI

Servel Announces Air Conditioning School

Air conditioning distributor personnel from all parts of the country came to Evansville, Ind., in March for a Servel factory training school in sales, application engineering and service, according to an announcement by H. R. Neilsen, manager of the air conditioning division of Servel Inc.

The application engineering sessions were held March 4-17, with James O. Yund, chief application engineer, in charge.

New LPG Firm for Kentucky

The Morehead L. P. Gas Sales Corp. has been organized to sell LPG service and appliances at Morehead, Ky. Stockholders include the following: W. E. McMasters, James L. Nickell, Beulah N. Williams, and James S. Williams.

Kaighin & Hughes Buy Trugas Constructors Inc.

Kaighin & Hughes Inc., Toledo, recently announced the purchase of Trugas Constructors Inc., formerly of Detroit. Trugas will operate as a subsidiary of Kaighin & Hughes, and will continue to engineer, design and construct L. P. gas and ammonia systems.

Officers of Trugas Constructors Inc. include J. L. Paulin, president; L. I. Hughes, vice president; B. W. Fast, vice president and general manager; Joseph Herbert, secretary, and James A. Austin, treasurer.

Steel Tank Firm Building New Plant

United Petroleum Gas Co., nationally bottled gas firm, and Steel Tanks Inc., New London, Minn., are building a \$125,000 plant in New London for the manufacture of steel storage tanks. The new plant will produce 4000 to 6000 tanks per year.

Steel Tanks Inc. was founded in 1950 to make tanks ranging from 115 to 1000 gal. capacity for sale to United Petroleum Gas. In 1951 United purchased a half interest in the tank company to provide additional capital for expansion.

Betts Bottled Gas Expands With New Michigan Plant

The Betts Bottled Gas Co., Munising, Mich., recently opened its new plant in East Munising.

The installation consists of a 24-ft. by 36-ft. steel building, pump house, and two 1000-gal. tanks. The gas is brought by truck from Gladstone.

According to Robert Betts, his company is prepared to serve the public and tourists with trailers having 20-lb. tanks. In addition, the company will have facilities for filling tanks of L. P. gas-operated cars and trucks.

Anchor Gas Adds New Storage Tank

Anchor Gas and Fuel Co. recently installed a 30,000-gal. tank to store LPG at their location in Orr, Minn. The addition of this tank to their former storage capacity gives them one of the largest storage capacities for LPG in the United States.

SO MANY EXTRAS AT NO EXTRA COST!



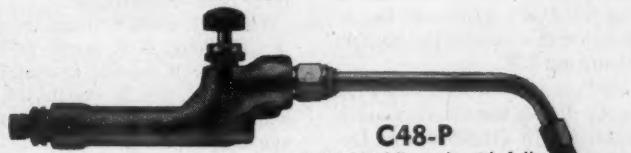
History of Welding

The Delhi column, built over 2000 years ago by fire welding thousands of small pieces of iron together. This column still stands before the Great Gate in Delhi, India . . . a silent tribute to the craftsmanship of fine welding.

Weldit's method of experimental research . . . both in the laboratory and on the production line results in new features being added to design and manufacturing processes which ultimately end in Weldit torches and equipment. These extras make Weldit the preferred torch in industry.

WELDIT ATMOSPHERIC AIR AND LP GAS TORCHES

Weldit, a pioneer in the LP gas field is noted for the high efficiency of Weldit LP torches and LP equipment.



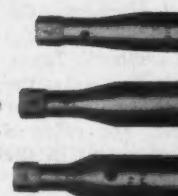
C48-P

A Weldit LP torch with full Weldimatic trigger control, adjustable pilot light and needle valve adjustment.



C48-WP

A non-automatic LP torch having the same rugged construction as the C48. Produces 14,872 BTU's with the No. 483 burner.



Canadian Distributor:
ALLOY METAL SALES — 181 Fleet St., E
Toronto 5, Ontario, Canada

Weldit
INC.
SINCE 1918

**990 OAKMAN BLVD.
DETROIT 38, MICHIGAN**

Product Development New Dept. for Norge

Creation of a Central Research and Product Development Department to develop new home appliances was announced recently by the Norge division of the Borg-Warner Corp.

The department, headquartered in the division's Muskegon Heights, Mich. plant, will be headed by G. P. (Pat) Kennedy as director of research, according to S. S. Battles, vice president in charge of manufacturing and engineering.

Mr. Kennedy, formerly Muskegon Heights plant manager, will be succeeded by C. P. Martin, manager of manufacturing for the past two years. K. E. Anderson, formerly assistant to the manager of manufacturing, will become assistant plant manager.

The new department will concentrate on developing home appliances for Norge's already established distribution channels. It will also conduct research and development work on new materials and manufacturing methods for improved appliances at lower cost.

GAMA Water Heaters Sales Up

Edward R. Martin, GAMA's director of marketing and statistics, reported that confirmed shipments for the entire year of 1953 totaled 2,125,700 units, an 11.3% gain over the 1,910,400 automatic gas water heaters shipped during 1952.

During January, 167,200 units were shipped to distributors and dealers, as compared with 137,800 during December. Shipments in January 1953 amounted to 184,000 units.

International Harvester Co. Opens District Sales Office

The International Harvester Co. has opened a new motor truck district sales office in Lubbock, Texas, according to Duane F. Kuntz, the company's southwest regional motor truck sales manager. The office is located in a suite of rooms in the Stanolind Bldg.

This new sales facility is serving approximately 125 International motor truck dealers and four company-owned International motor truck sales branches located in west Texas, eastern New Mexico, and the most southwesterly portion of Oklahoma.

The opening of Harvester's district sales office marks the second com-

pany operation to be established here.

1953 Biggest Year for Servel Employee Ideas

Employees of Servel Inc. received a total of \$15,868 in 1953 for acceptable ideas to improve the company's products and production methods, according to an announcement by G. A. Eberlin, chairman of the suggestion award committee. The amount of money paid out for suggestions last year was the largest sum paid in the 19 years that the suggestion award plan has been in operation.

In 1953, Servel employees turned in 1238 suggestions, of which 326 were accepted and paid for.

Rockhound Chuckwagon Uses Butane

The only rockhound chuckwagon in existence, capable of serving up to 40 people, was designed and built by members of the Coachella Valley Mineral Society for their frequent trips in search of new and interesting rocks.

The chuckwagon idea was born out of time-consuming camping—after building fires, preparing meals, and then cleaning up, there was very little time left to look for rock specimens. So all the members of the Coachella valley group pooled their talents and went to work building their own chuckwagon.

The little trailer, minus the tongue, is 6 ft long, 5 ft wide, and about 2 ft deep. It carries a complete set of utensils for 36 people, 20-gal. of water and enough food for the average weekend trip.

The front portion of the trailer is an ice box, holding 75 lb of ice and offering 3 cu ft for storage. The sides lower for work tables, while the rear is the cooking area.

Raymond St. Cyr Resigns From Cyr Bottled Gas Co.

As a result of the withdrawal of Raymond A. St. Cyr from participation in the Cyr Bottled Gas Co., Marquette, Mich., Leonard J. St. Cyr succeeds him as secretary-treasurer of the company. Earl St. Cyr, father of the newly elected officer, remains as president, and John Hogan remains as general manager.

Raymond St. Cyr was associated with the gas company since its formation in 1940.

At present, the company is engaged in a large-scale expansion program, which includes erection of a new bulk plant in Munising to serve its Alger county accounts.



The Society's chuckwagon, only five by six by two ft, tows easily over desert roads. The chuck wagon carries food, ice, water and butane for fuel.

The tongue, which can also serve as a shelf, carries the two butane tanks which heat the rear cooking area. There is also a separate grill fired by butane.

The Coachella valley's chuckwagon has stimulated so much interest among members of other mineralogical societies that the little trailer was displayed at the mineralogical convention held recently in Indio.

Adapted from an article appearing in GEMS & MINERALS, December, 1953.



Members of the Coachella Valley Mineral Society gather around their grill for a meal of appetizing looking flapjacks. Grill is fired with butane.

Butane-Propane



POWER SECTION

INSTALLATION • CARBURETION • SERVICING



Plowing demonstration, using factory equipped Minneapolis-Moline Model Z tractor, at University of Arizona "Field Days" farm machinery conference.



The power farming equipment exhibits, including many factory-equipped LPG tractors, covered a large area of the Mesa Experimental Farm yard.

Arizona Farmers see Butane Tractors

Twenty five hundred Arizona farmers saw the latest and best LPG-equipped tractors and other farm machinery utilizing propane at the second annual field days program at Mesa Experimental Farm on Feb. 5 and 6. The event was sponsored by the University of Arizona, college of agriculture, the agricultural experiment station, and the Implement Dealers' Association of Arizona. The Arizona Crop Improvement Association and the Farm Bureau Federation helped to swell the attendance.

Mornings were devoted to reports of scientists and specialists on current crop problems pertinent to the central Arizona valleys, while the afternoons were open for inspection and investigation of the large display of farm machinery exhibited in the implement yard of the station.

The Butane Corp. of Phoenix participated with a sample of the Power Flame alfalfa burner, manufactured by Manchester Welding and Fabricating Co., Los Angeles. This was fired up every hour during the afternoons, and the roar of the burners quickly attracted a crowd. A duplicate of this machine has been under test for a number of months in the alfalfa fields of the Phoenix area, where it has proved very effective in controlling seasonal weeds, dodder, and insects. Reports of these results proved very interesting to farmers producing a number of crops in which flaming seemed to offer advantages in weed and insect control.

The tractor exhibits included Minneapolis-Moline models UB and Z, shown by Lee Redman Equipment Co., Phoenix; the new John Deere LPG model, exhibited by Arizona Machinery Co., Phoenix; the J. I. Case, from Garrett Equipment Co., Casa Grande; International models shown by O. S. Stapley Co., Phoenix and Mesa; Massey-Harris, shown by Vern Walton Co., Casa Grande. In addition to the tractors listed above, all of which were factory-equipped with LPG fuel systems, cutaway models of the Ensign carburetion system were included as part of the Minneapolis-Moline exhibit.

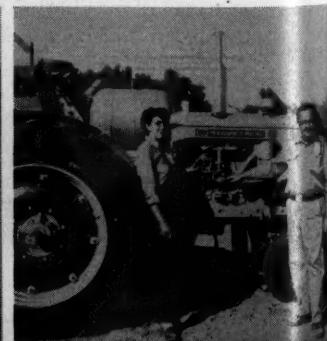
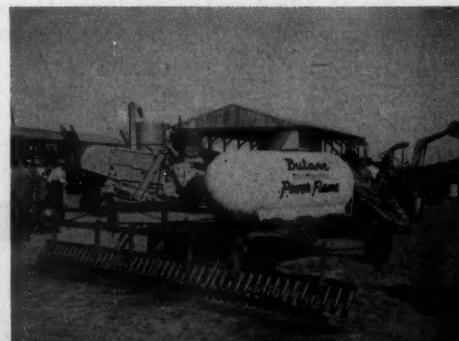
The dealers participating in the field days have been thoroughly pleased with the results. They point out that, unlike the crowds at state and county fairs, the people who attend this event are all farmers, most of them use power equipment, and they are there for business, not for amusement or fun. There are no side-

shows or conflicting attractions to dilute the interest of the participants. With a favorable mental climate, it is possible to get the prospects to concentrate on the business of listening to the sales story of the implement in question.

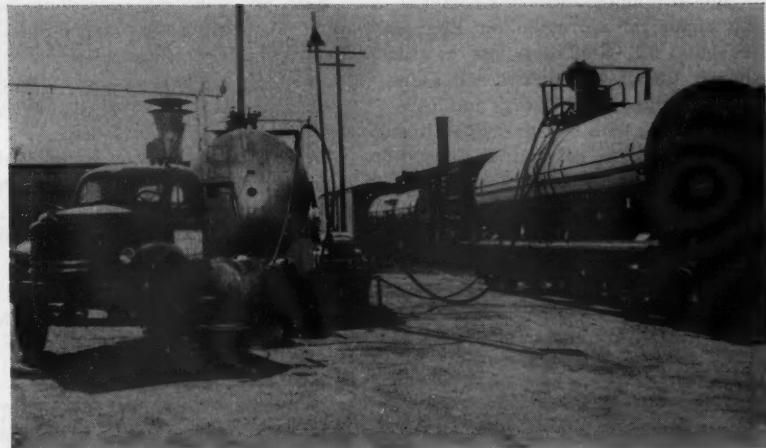
The Arizona scene is a "natural" for the use of LPG in tractors, and a heavy demand already exists. There are many large farms, the growing season is long, many of the crops require a great deal of mechanized cultivation. Some of the tractor companies maintain field testing laboratories in the Phoenix area, where one season's operation in actual crop production adds up to three or four times the annual tractor hours that are required for corn-belt farming. It was one of the first areas in which large scale conversion of gasoline tractors took place, and the demands relayed to the factories from Arizona were a potent factor in deciding the factories to go into production on LPG models.

Once each hour the alfalfa flamer let out a roar and drew a crowd. Its 18-ft burner bank drinks up 60-gal. per hour.

Tony Tchida and his wife made the pitch on one of the factory-made tractor installations. He says that little thing bolted to the manifold does the job.



Bulk storage facilities for LPG are located at key terminals of the Steffke Freight Co. operating in Wisconsin, Michigan, Illinois and Iowa. The tank here is located at the firm's home office in Wausau, Wis.



Some of the Reo trucks in the fleet of the Steffke Freight Co. are shown (left) at the loading dock of the firm's terminal in Wausau, Wis. More than 30 of the Reos are powered by factory-built liquefied petroleum gas engines.

Steffke Stays Sold on LPG

MORE than 13 years ago a Phillips Petroleum salesman invaded Wisconsin selling liquefied petroleum gas, and—as Wesley A. Steffke, president of Steffke Freight Co., will testify—that salesman certainly could sell LPG.

That is Mr. Steffke's explanation of how he came to be the pioneer in his part of the country in the use of L. P. gas as a motor truck fuel. He now has the country's largest fleet of LPG powered trucks, consuming from eight to ten carloads of the gas per month. He not only uses it for his trucks, but it also provides heat for the home office of the Steffke Freight Co. in Wausau, Wisc.

That a company of the size of Steffke Freight is clearly "sold" on the advantages of L. P. gas not only is a potent argument in favor of the fuel, but it also gives a second thought to those who contend that "L. P. gas is all right if you happen to operate in the Southwest or some place where it is plentiful." Steffke Freight is one of the largest carriers

operating from Chicago north into Wisconsin and upper Michigan—hardly "home grounds" for LPG.

The company today has more than 800 employees on its payroll and has a fleet of 123 straight trucks, 193 tractors and 270 trailers of all types—flat, open and insulated. It maintains terminals and stations at 31 points in Wisconsin, seven in upper Michigan, two in Illinois and one in Iowa. More than a million and a half pounds of freight are handled daily through the company's Chicago terminal alone.

Through this system, Mr. Steffke is able to provide direct single line service to about 270 cities and villages in Wisconsin and 35 in upper Michigan. Along with the ability to interchange freight with all other common carriers at any interchange point, Mr. Steffke can offer a service equalled by no other carrier operating out of Chicago in the same territory.

While the Phillips Petroleum man may have been a super-salesman for L. P. gas, Mr. Steffke is no slouch in

that department, either. With good reason, he is not exactly anxious to go into operating details, but there is no question but that he "stayed sold" on the advantages of using LPG. It is the major fuel for the company's over-the-road units.

For one thing, he says, "The drivers like it." Having been a truck driver himself, this factor is one he does not treat lightly. Endowment of the man behind the wheel lies in the extra power that L. P. gas places at his command.

Mileage is "very, very close" when comparing LPG with other fuels, Mr. Steffke says, but when the other factors are considered—extra power, lower per-gallon cost, and lower maintenance expenses—LPG stands out.

The combination of these reasons is the explanation for the company's recent purchase of Reo tractors, each powered by Reo's 331-cubic in., 142-hp Gold Comet engine, a factory-built LPG power plant. Mr. Steffke has more than 30 Reos in his fleet.

Lower maintenance costs comprise an important attraction for Steffke Freight. Mr. Steffke points to the longer life of his engines and their components—rings, pistons and bearings. Along with a cleaner-operating engine comes a substantial drop in oil consumption: 8,000 miles without an oil change is the Steffke average.

"It wasn't always like that," Mr. Steffke recalls. After the Phillips man sold him on the fuel, the next problem was to learn how to use it, "and that wasn't any simple task."

With no operating precedents to draw upon, being the pioneer in the local field, Mr. Steffke had no choice but to adopt the trial and error method, and he had his share of both trials and errors.

"We jugged valves and we jugged pistons. They were either too dry on top or too wet. There was always something," he said. "But we licked it."

He credits Roger DeLacy, a Phillips engineer, with considerable help in licked the problem.

Three Years of City Bus Operation With LPG Fuel

By J. E. Ebinger
Vice President and
General Manager
Wichita Transportation Corp.
Wichita, Kansas

The use of propane as a fuel in bus engines is not new. It was tried in the city bus field many years ago on the west coast, and was discarded primarily because they lacked a high-compression engine. The intervening years of technological progress has produced the high-compression engine that now makes possible the efficient use of propane as a bus fuel.

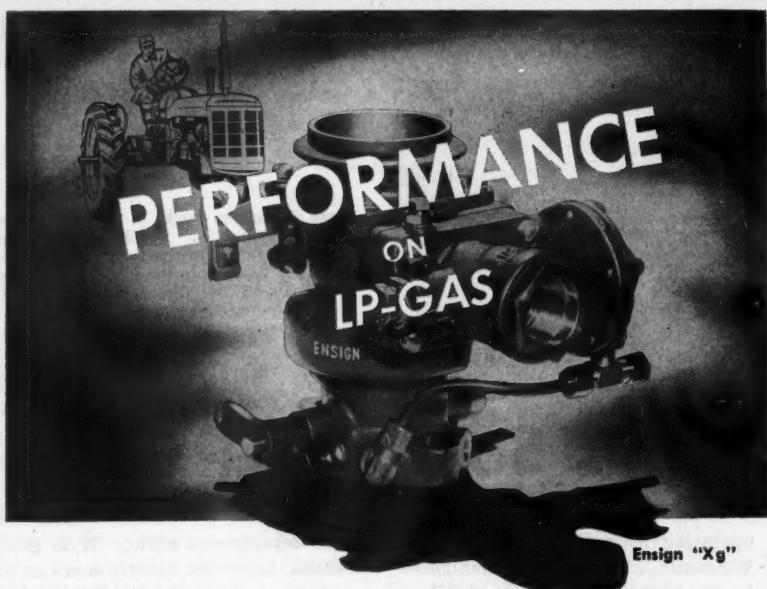
Wichita, as you know, is located in a gas and oil producing state. The marketing of propane in our area has not kept abreast of its production. Consequently, we have a bonanza in the form of a surplus product at a very low cost. It will be recalled it was this very same economic situation that launched the diesel engine to its present popular usage.

At the outset let me make it clear that it is not my intention to allege that propane is cheaper than diesel as a universal bus fuel. There are too many factors that must be taken into account in evaluating the merits of one fuel over another. When L. P. gas pipelines network the country as present petroleum products pipelines now do—and there is every possibility this will be done—it will undoubtedly bring about increasing usage of propane as an engine fuel.

We have a fleet of 131 coaches, 91 of which are equipped to use propane. The other buses use gasoline. We have no diesel coaches on our property. Our propane equipped buses range in size from 34 passenger to 40 passenger. They are all equipped with FTC-180 Fageol engines converted to propane. Comparative operating data, using the year of 1949 when our coaches were operating on gasoline, and the year of 1952, when the same buses, plus others, were all operating on propane, is tabulated in Fig. 1.

It will be noted that the fuel consumption of these coaches when operating on gasoline was 3.79, as compared to 3.44 on propane. Much will be made of these figures by those attempting to discredit the use of propane, and to avoid later misquotation and misrepresentation, all of the above statements and those following must be considered as part of the same context.

Approximately one-third of our propane fleet is stored outside. We had no outside storage in 1949. The



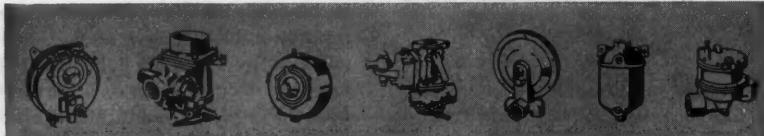
PERFORMANCE is an all important factor in an LP-Gas carburetor. Without it service calls would soon ruin the good reputation of the finest engine—can also be very costly to the tractor dealer and fuel dealer as well. Dependable carburetor performance, like that of a tractor or truck, isn't just a "design accident." It goes back over the years of field experience and laboratory development.

Your Ensign carburetor of today is the result of 43 years specialized experience—the result of millions of successful installations with all kinds of fuel. The benefit of this experience is yours when you buy Ensign. Insist on Ensign—accept nothing less.

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On motors designed to your special needs we can also probably give faster service because of the many variations we have already developed for others.

Write for Bulletin 100, and name of your local LELAND dealer or representative.

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The **LELAND**  **ELECTRIC** Co.
DAYTON 1, OHIO

Division of AMERICAN MACHINE & FOUNDRY COMPANY, New York
In CANADA, Leland Electric Canada, Ltd., Guelph, Ontario

Year	Fuel Used	No. of Buses	Mileage Operated	Gallons Fuel Consumed	Miles Per Gallon	Oil Consumed			Fuel Cost Per Mile
						Changes	Oil	Miles P/G Incl. Changes	
1949	Gasoline	60	3,128,818	826,020	3.79	9,679	323	.04237	
1952	Propane	90	4,296,321	1,249,566	3.44	6,224	690	.03366	

NOTE: Cumulative cost of gasoline per gallon in 1949 was 16.05 cents, compared to 17.78 cents for year 1952, including all taxes and delivery charges. Cumulative cost of propane per gallon in 1952 was 11.58 cents, including all taxes and delivery charges.

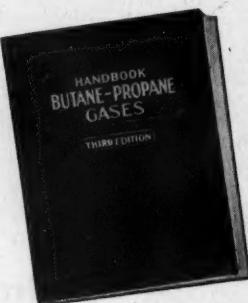
Fig. 1.

Korean conflict was responsible for the growth and expansion of our fleet. As a consequence, the propane

figures, (i. e. miles per gal.) include all fuel consumed while coaches were being idled outdoors during the

HANDBOOK BUTANE-PROPANE GASES

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- 352 Pages. Illustrated with Charts. Diagrams and Photographs.



Check this partial list of contents.

INTRODUCTION

The Progress of the Industry and the History of its Development.
The ABC of LP-Gas, an Introduction to LP-Gas Operations.

PHYSICAL AND CHEMICAL PROPERTIES

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Semi-Bulk Systems
Bottled Gas Systems
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Multiple Utility Service from a Central Plant

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N.B.F.U. Pamphlet No. 58 (1947).
Motor Carrier Regulations
Freight Regulations
Unloading Tank Cars
Marine Regulations

APPENDIX

LP-Gas Insurance
Handy Tables for Field Use
The Interchangeability of Other Fuel Gases with Natural Gases
Flame Weeding
Bibliography
Glossary of Terms

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Published by

BUTANE-PROPANE News

cold weather months. Another factor is that in 1949 all of our gasoline buses, powered with FTC-180 Fageol engines, were operated in all-day service. This is mentioned because the non-rush, mid-day, and night periods of low consuming fuel consumption bring up the rush-hour average of high fuel consumption. Because of additions to our fleet, many of these buses that saw all-day operation in 1949 were operated in rush-hour service only in 1952. This, as any operator knows, increases fuel consumption.

Furthermore, we cannot adjust for the impact of the Korean incident upon fuel consumption figures between 1949 and 1952. In Wichita it produced increased riding and more traffic congestion. We feel that our loss in fuel economy—propane over gasoline—under comparable conditions will not exceed 3% maximum.

There is much speculation regarding the life of a propane engine; that is, the mileage between overhauls. Obviously, the greater the mileage the less cost, which in turn may spell the difference between profit and loss in the distressed transit industry. It was thought we could bring to you an answer to that question, but this was impossible as will be subsequently explained. The first two propane buses purchased 3½ years ago have each operated 230,000 miles to date. No money has been expended on these engines except to replace spark-plugs, ignition points, filter socks, as well as bellows and seats of the propane regulator, and, of course, periodical inspection which is part of normal preventive maintenance procedure in the bus business. According to our records these first two buses are currently consuming approximately one gal. of add oil every 700 miles. Fuel consumption is at 3.74 miles per gal., which is three-tenths of a mile more than the 1952 fleet average. This did not tell us too much except the engines are still in excellent condition. It was therefore decided to take down one of these engines, calibrate the wear of the various components, just for the purpose of ascertaining what had taken place after 3½ years and 230,000 miles of city bus operation. The results border on the incredible:

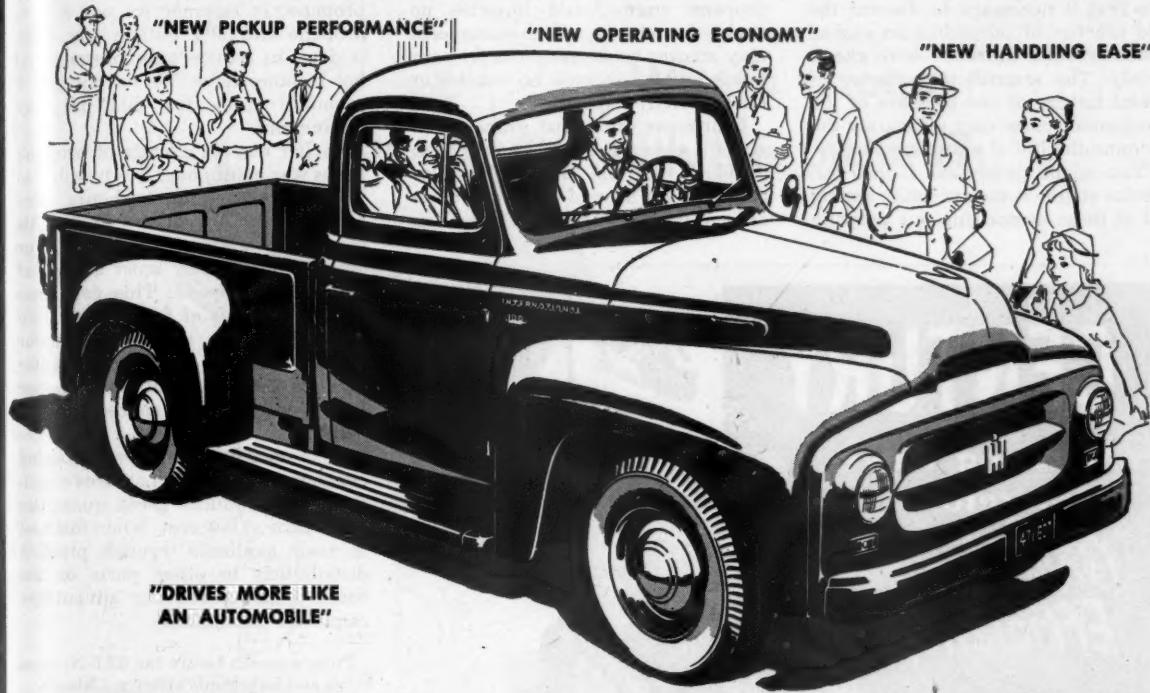
Cylinder wall wear—a maximum of five-thousandths, measured 1½ in. from the top.

Cam shaft—wear under one-thousandth.

Valve stems—no measurable wear; seats in perfect shape.

Crankshaft—main bearings were standard; and connecting rods were one-thousandth undersize.

It's Here! New INTERNATIONAL ONE HUNDRED!



Best pickup buy in lowest-priced field

Here is 1954's biggest pickup truck news!

It's the new INTERNATIONAL ONE HUNDRED, with a whole new line-up of pickup truck advantages. And a price that's right down with the lowest!

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New Economy Silver Diamond Engine has new high turbulence pistons and high velocity manifolding. Short stroke, low-friction design. 104 hp., 7.0 to 1 compression ratio.

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INTERNATIONAL TRUCKS

Standard of the Highway

It must be remembered this is start-stop mileage, and does not compare with over-the-road operation. Based on the above, it is not inconceivable that propane engines will run 400,000 miles before rebuild, and perhaps even more. With propane operation we find it necessary to discard the old practice of rebuilding an engine when cylinder walls are worn excessively. The unpredictable factor of metal fatigue of one or more of the component parts may ultimately determine the life of a propane engine.

You might rightly ask if this particular engine is the exception among all of those comprising our propane

fleet. The answer is no! We have over 40 other propane equipped bus engines that are approaching the 200,000 mile mark, and they too have not had any money spent on them except as already outlined.

There are no carbon deposits in a propane engine, and likewise no sludge formations, which statements may answer some questions in your mind. Further there is no varnish or other gummy deposits.

Crankcase oil in our propane engines is changed every 14,500 miles, at which time the filter sock is also changed. We hear of other operators extending oil changes to 20,000 miles.

Due to the fact that there is no fuel dilution of the crankcase oil, viscosity of the oil tends to increase. Keeping the oil too long in the crankcase is apt to produce sulphur, which is corrosive on the bearings.

During the winter, we use 100% propane; in summer we use a 70% propane and 30% butane mix. This is done to reduce tank pressure on hot summer days. We do not pay a premium price for this propane-butane mix.

Earlier outside storage of propane buses was mentioned. It is possible to idle a propane engine for hours without harm, but as everyone knows this cannot be done with a gasoline or diesel engine. They must be run at above idling speed. This consumes great quantities of fuel and is very costly. Recourse is had to outdoor boiler units that circulate hot water through a maximum of ten buses per boiler unit. We are spared this expense.

In summary, we feel we are taking economic advantage of an area condition that produces great quantities of propane at low cost. When this fuel is made available through pipeline distribution to other parts of the country, its cost-saving advantages cannot be discounted.

From a speech before the SAE National Fuels and Lubricants meeting, Chicago.

Propane Buses Replace Chicago Streetcars

Another step in Chicago Transit Authority's continuing modernization program became effective recently when 99 new, odorless, propane buses replaced 90 streetcars on Ashland Ave. and Ashland downtown routes, according to Walter J. McCarter, general manager.

This move lends a new flexibility to routing and schedules.

Giant Diesel Engines Show Economy on LPG

Tests recently completed by the Worthington Corp., Harrison, N. J., indicate that LPG may soon be used to operate the giant diesel engines used by manufacturers and municipalities to produce electrical power.

The company reports that tests have been successfully completed at the Waverly, Iowa, municipal utilities, where propane was used to fuel Worthington diesels. The mammoth engines are of the dual-fuel type and ordinarily burn either diesel oil or natural gas. According to Glen V. Yarger, superintendent of the utilities, the use of propane resulted in a 20% saving over diesel oil.

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LP-GAS CARBURETION

152

BUTANE-PROPANE News

**What's wrong
with this picture?**

A lifeguard who can't swim and is afraid of water to boot, doesn't inspire any confidence. And, you aren't inspiring any confidence if you don't practice what you preach. If you sell LP-Gas, deliver it in LP-Gas powered trucks.



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How To Vent Vehicle Tank Safety Relief Valves

One of the important safety precautions most frequently overlooked in making L. P. gas conversions on trucks, tractors, and passenger cars is the matter of proper venting of the safety relief valve of the fuel tank. Pamphlet 58 (NFPA) is very specific in this matter. The recommendations contained therein are based on

practical experience, and if followed would have prevented certain serious accidents that have come to our attention.

For example, a tractor was equipped with a fuel tank on which the safety relief valve was mounted horizontally, and the direction of the discharge was straight back. The valve discharged, and the blast struck the operator on the chest, causing a serious "burn" even though

the escaped fuel did not ignite.

The safety relief valve operated in a parked car, in which the propane tank was in the enclosed trunk, with no vent to atmosphere. Fumes penetrated into the body of the car. When the owner of the car sat down behind the wheel and lit a cigarette, an explosion followed.

A propane powered truck was de-

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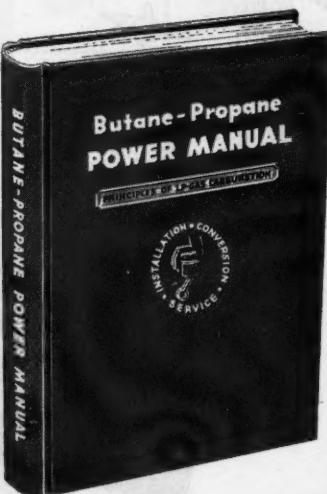
Second Printing — Nov. 1953
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Here is the first authoritative guide ever published for the rapidly expanding LPG power market. Basic facts of engines, fuel, and power are given in easy-to-understand language; then careful directions and clear illustrations take you step-by-step through installations, conversions, servicing . . . everything needed in a practical working manual for practical men. Nearly 5,000 copies of the BUTANE-PROPANE POWER MANUAL have already been sold.

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3. Basic Facts of Fuel Combustion Engines
4. Factors Affecting Operating Economy and Power
5. L. P. Gas Carburetion Systems
6. Regulating Gas Pressure and Temperature
7. Fuel Supply System, Vehicle Tanks and Equipment
8. Natural Gas Carburetion
9. Planning the L. P. Gas Installation
10. Checking the Engine's Condition
11. Raising the Compression Ratio
12. Cooling the Intake Manifold
13. Ignition Problems
14. Tractor Conversions
15. Truck and Bus Conversions
16. Passenger Car and Taxicab Conversions
17. Industrial Engine Conversions
18. Installing and Adjusting L. P. Gas Carburetion Systems
19. Manufacturers' Instructions for Adjusting L. P. Gas Carburetors
20. Lubrication of L. P. Gas Engines
21. Trouble Shooting
22. Safe Storage and Handling of L. P. Gas
23. Selling L. P. Gas Carburetion Appendix (including Definitions)

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cending a grade ahead of a following wind. The fuel tank safety relief valve discharged horizontally against the highway embankment, and the escaped gas ignited, with the result that the trailer and cargo burned up, and the driver received serious burns.

All of these, and similar accidents, would not have occurred had the people who installed the fuel tanks observed these paragraphs, quoted from the May, 1953, issue of NFPA Pamphlet 58, Section 4.6, page 45:

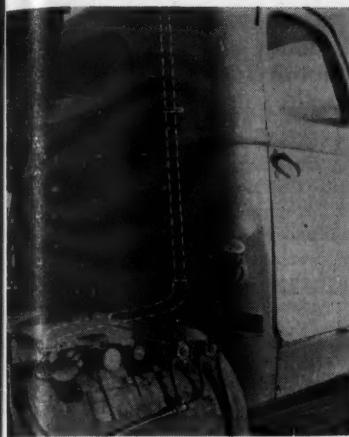
"(a) Spring loaded internal type safety relief valves shall be used on all motor fuel containers.

"(b) The discharge outlet from the safety relief devices shall be located



on the outside of enclosed spaces, and as far as practicable from possible sources of ignition, and vented upward in such a manner as to prevent impingement of escaping gas on containers, or parts of the vehicle. Loose fitting rain caps shall be used.

"(c) When a discharge line from a container safety relief device is used, it shall be sized and located and maintained so as not to interfere with the required flow of gas through the safety relief device. Such discharge line



shall be able to withstand the pressure resulting from the discharge of vapor when the safety relief valve is in the full open position."

The accompanying illustrations, reproduced from the *Philgas Time*, show fuel container safety relief vented *improperly*. The dotted lines indicate the Philgas engineers' recommendations for bringing these tanks into compliance with the provisions of Pamphlet 58.

Propane Buses Proposed To Combat New York Smog

The fight against air pollution in our metropolitan areas continues on many fronts. New York City's Air Pollution Control Commissioner Leonard Greenberg is now urging the use of propane as fuel for the buses in metropolitan New York as a means of eliminating irritating exhaust fumes.

In an interview on a television program Dr. Greenberg called attention to the fact that liquefied petroleum gas is now being used in Chicago and other city bus fleets, with results favorably comparable to gasoline or diesel fuel, but without the objectionable fumes. He said he would recommend to the transit authority the use of LPG on Staten Island buses for six months to a year. If successful, he said, the plan could be extended to city-owned and privately-owned buses throughout the city.

Air pollution measures are also under consideration in the legislatures of the states of California, New Jersey, Massachusetts, and Kentucky. New York and New Jersey face an interstate problem in that fumes originating in the area west of the Hudson River may be contributing to the pollutants affecting the city of New York, and vice versa.

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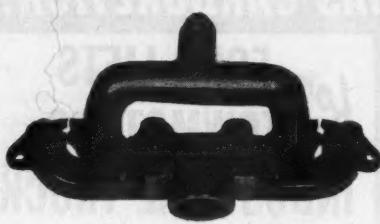
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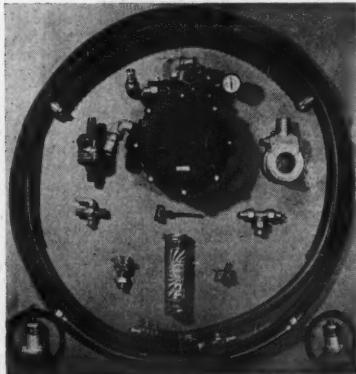


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Kansas State College Produces LPG Tractor Bulletin

Under the title "Liquefied Petroleum Gas For Tractors," the Engineering Experiment Station of Kansas State College has released Bulletin No. 71, which consists of a statistical, engineering, and economic study of the comparative results of operating tractors in the state of Kansas on L. P. gas, gasoline, and diesel fuel.

In the introductory part of this bulletin the author, George H. Larson, gives estimates that 10% of the tractors in Kansas are already operating on LPG, and that the average annual fuel consumption per tractor in Kansas is approximately 1450 gallons.

Several tables and charts are included in the reports of the laboratory tests which are of considerable value in substantiating claims made in selling LPG conversions. These include data on the increase in power and decrease in fuel consumption as the compression ratio of the test engine was increased from 5.4:1 up to 10:1. The maximum gain in power was 26.55%, while the gain in economy went up to 21.42%.

The test data on fuel consumption and exhaust temperatures in relation to carburetor adjustment indicated clearly that accurate carburetor setting is necessary, and that after the correct adjustment is reached, it should be left alone. Similar conclusions were reached in connection with ignition timing.

Investigation of the effect of fuel temperature on mixture ratios, power, and exhaust temperature, on which there appears to be little published data, indicates definite advantages in keeping vapor temperature at the carburetor as low as possible. It is also noted that attempting to use tank vapor through a liquid regulating system results in lean mixtures, loss of power, and possible valve trouble. This same series of tests also shows that drawing vapor from the tank when mixed fuel is used instead of commercially pure propane results in a changing composition of fuel, which is not the case with a liquid withdrawal system.

In arriving at conclusions as to comparative cost of operation on gasoline, diesel fuel, and LPG, the Kansas tests show that under conditions prevailing in most of that state it can generally be considered that gasoline will be most economical up to approximately 400 hours of tractor use per year. With the same per gallon cost, diesel operation is more economical above about 1500 hours per year, but with a 2 cent cost differential in

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favor of LPG, it provides the most economical operation throughout the range.

This bulletin may be obtained from the Engineering Experiment Station, Kansas State College, Manhattan, Kansas.

Correction, Please!

Readers of BUTANE-PROPANE News who were confused by the transpositions which occurred in the printing of page 149 in the March issue ("Ready-Mix Concrete Fleets Find LPG the Ideal Fuel") will find the following explanation and guide helpful in unscrambling the story:

The first line below the picture in each column should have appeared just above the picture. Thus, in the left-hand column, the 17th line, reading "These first five converted trucks" would read into the first line below the picture, "were operated for 60 days under," and this line, in turn, should lead into the top line in the center column. Similarly, the last line above the picture in the center column, "real and important saving in operat" should read into the first line below the picture, "ing cost. Since it was not necessary," but this line would read into the top line in the right-hand column.

The last line above the picture in the right-hand column, "three plants, all in Memphis. Fuel" reads into the first line below the picture, "storage and dispensing equipment," but from this line, the reader should jump to the second line under the picture in the left-hand column, "was provided for all three plants, the". By omitting the first line under the picture, then, the reader would find that the bottom halves of the three columns read in sequence.

In other words, imagine that the first line below each picture were transposed above it; then read the three top sections, left to right, then the three bottom sections in the same manner.

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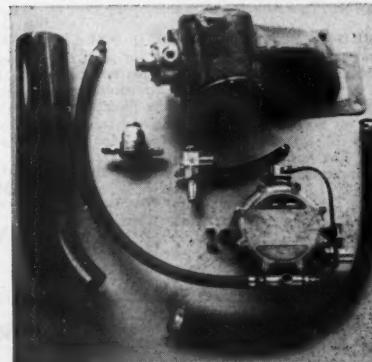
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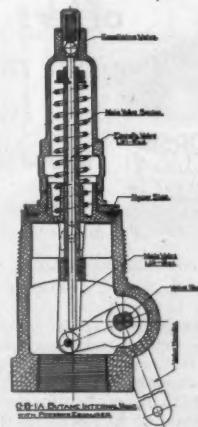
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